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EIGS
ENGIN STORAGE

Special Feature: Articles on the Use of Cement and the Handling of Concrete.

The Canadian Builder and Carpenter

PUBLISHED ONCE A MONTH BY THE COMMERCIAL PRESS, LIM...

Vol. 3 TORONTO, APRIL, 1913 No. 4

Architectural Engineering

AUG 24 1987 UNIVERSITY OF TORONTO

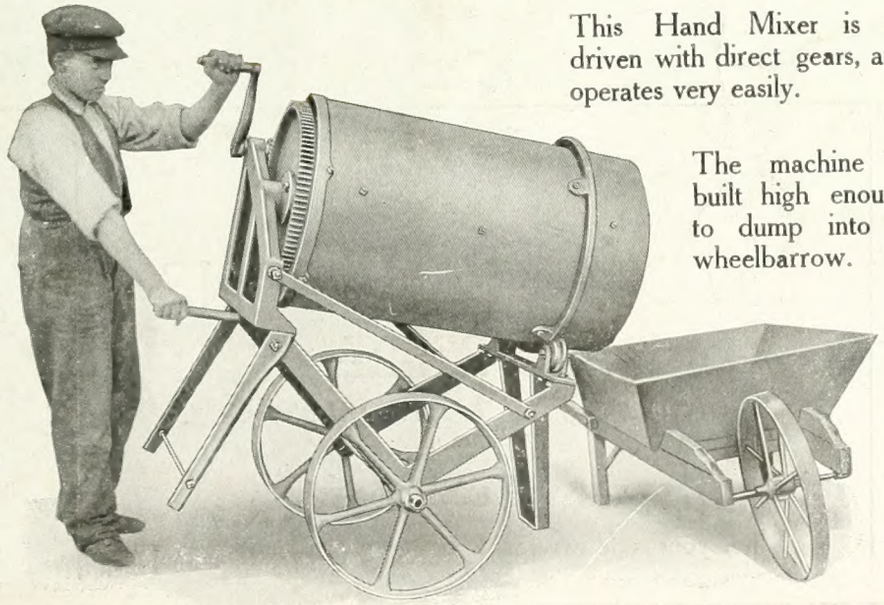
C A Bradshaw Jun 13 Bd
183 Davenport
TORONTO Ont

The Wettlaufer Hand Mixer

will save the labor of Two or Three men

Give up Mixing Concrete by Hand
Buy a Wettlaufer Mixer. It will pay you well

Send for Catalogue and Prices



This Hand Mixer is all driven with direct gears, and operates very easily.

The machine is built high enough to dump into a wheelbarrow.

¶ This is the very machine for foundations, cellar floors, cement walks, etc.

¶ If you haven't enough work for a power mixer, this machine will be a paying investment.

Wettlaufer Bros.

178 Spadina Ave., Toronto

Office and Warerooms
WETTLAUFER BROS.
316 Lagauchetiere St. W.
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MAYSMITH & LOWE
545 Bastion St.
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The HALLMAN MACHINERY CO.
3743 Alexander St.
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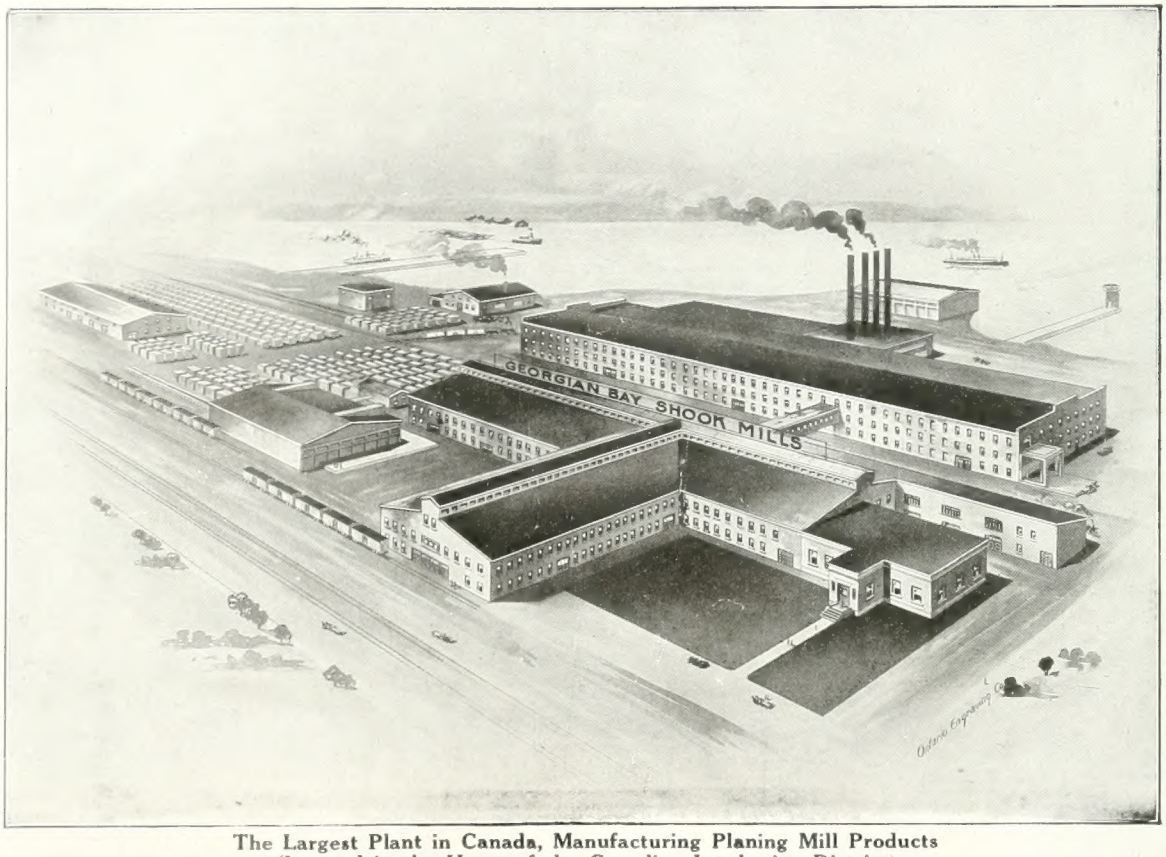
Midland Planing Mill Products



The Largest Plant in Canada, Manufacturing Planing Mill Products
(Located in the Heart of the Canadian Lumbering District)

Doors:
Pine
Hardwood
Veneered

Sash
Frames

Columns:
Verandah
Interior

Newels

1913
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STOCK DESIGNS
NOW READY.

New Designs. *New Features.*
New Prices.

STRICTLY UP-TO-DATE.

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Trim
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Hardwood Flooring
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Box Shooks

Georgian Bay Shook Mills, Limited
Midland, Ontario
Manufacturers from the Tree to the Finished Product.

Midland Planing Mill Products

Midland Hardwood

This Mark on

MIDLAND BRAND

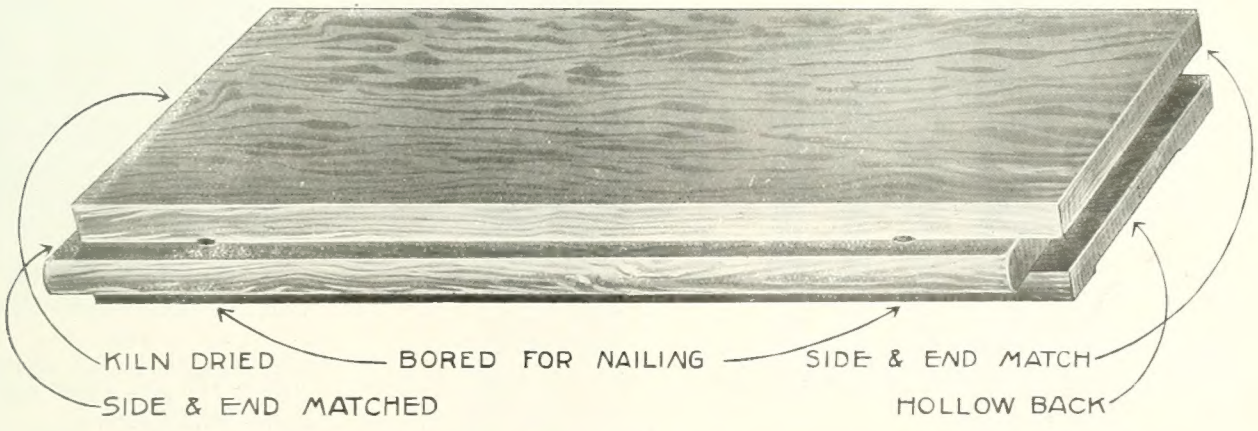
Brand Flooring

Every Piece.

The Timber Limits, near Midland, from which we draw our supply, produce the best Maple and Beech flooring stock in North America.

We own the Limits, cut the Timber, saw the Lumber in our Saw Mill at Thunder Bay, and manufacture the Flooring in our Planing Mill at Midland.

From Tree to Finished Product. ***Output—Fifteen Thousand Feet per Day.***



Kiln-Dried, Tongued and Grooved, End Matched, Hollow Backed, Bored for Nails, Bundled with Wire.

Maple, Beech, Plain Oak, Quarter Cut Oak, Birch.

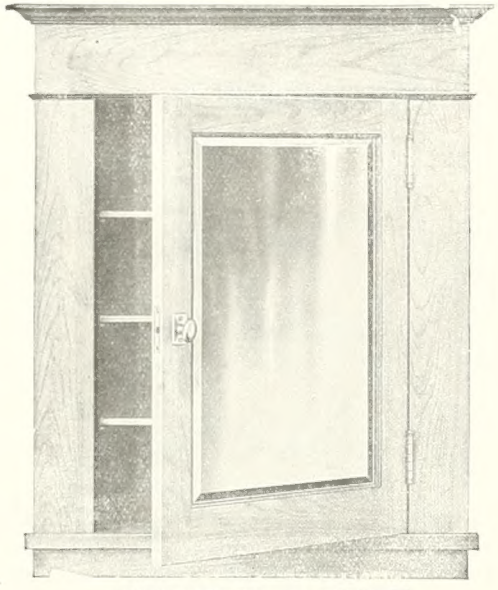
Standard Grading Rules—Select, Clear, No. 1, and Factory.
Thicknesses—Thirteen Sixteenths ($\frac{13}{16}$), Nine Sixteenths ($\frac{9}{16}$), Three Eighths ($\frac{3}{8}$).

Georgian Bay Shook Mills, Limited

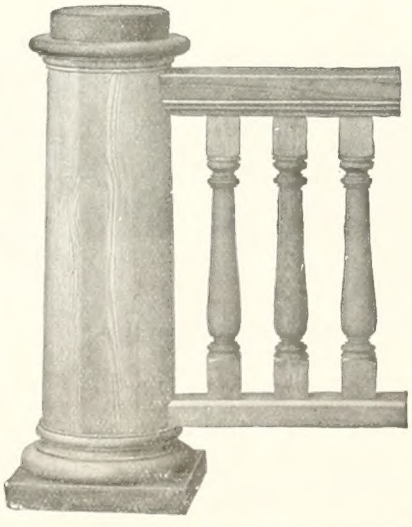
Midland, Ontario

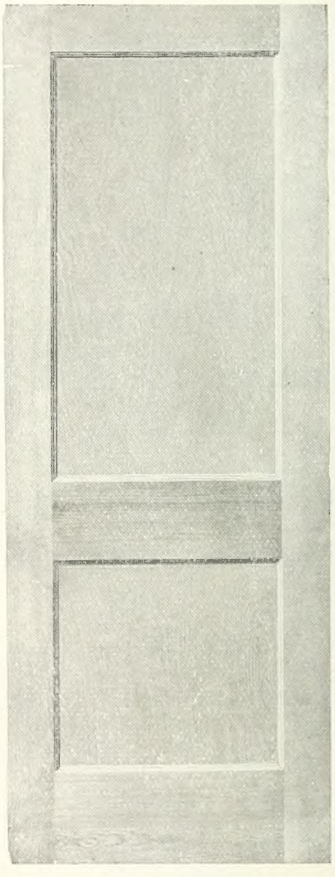
SAVE MONEY—BUY OUR STO

Here are a Few of Our



MEDICINE CABINET
Complete with bevelled mirror and hardware
$4.50





KLIMAX DOOR
Veneered Birch Panels. Absolutely clear.
Stock sizes, 2' 0", 2' 2", 2' 4", 2' 6", 2' 8", 2' 10" wide x 6' 8" and 6' 10" high. **$2.75** each.

COLONIAL COLUMNS

4' 0"	high x	8"	dia.	**$2.25**	each	8' 0"	high x	10" dia.	**3.50** each
4' 0"	" x	10"	"	**2.50**	"	9' 0"	" x	8" "	**3.50** "
6' 0"	" x	6"	"	**2.25**	"	9' 0"	" x	9" "	**3.75** "
6' 0"	" x	8"	"	**2.50**	"	9' 0"	" x	10" "	**4.00** "
6' 0"	" x	10"	"	**3.25**	"	10' 0"	" x	10" "	**4.50** "
8' 0"	" x	8"	"	**3.25**	"	10' 0"	" x	12" "	**6.25** "

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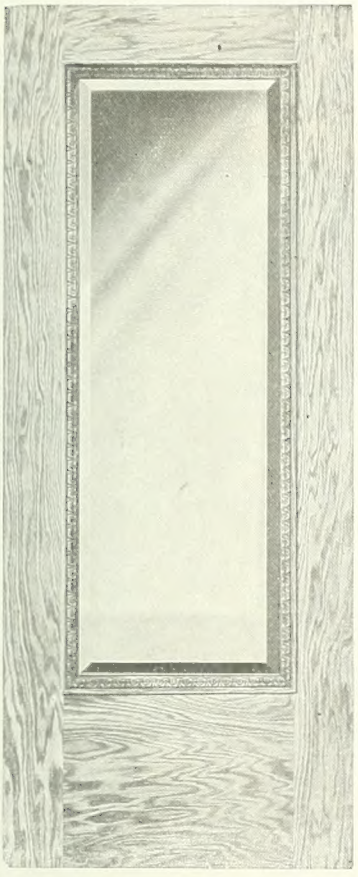
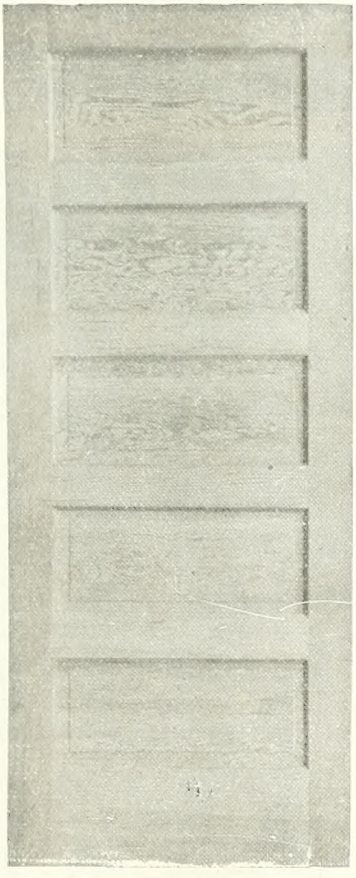
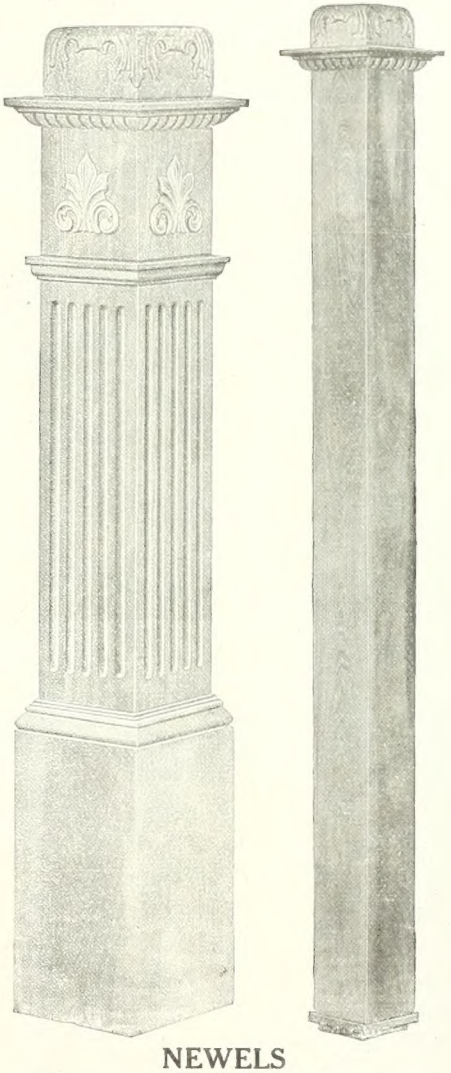


OAK FRONT DOOR
(Embossed Moldings)
Stock sizes: 2'2", 2'4", 2'6" and 2'10" wide x 6'10" high.
$6.50 each



B. C. FIR DOOR
Fir, Natural Finish
Stock sizes: 2'0", 2'2", 2'4", 2'6", 2'8", 2'10" wide x 6'6", 6'8", 6'10" high. **$2.75** each.



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Birch	Oak	Birch	Oak
$4.50	**$4.75**	**$3.25**	**$3.50**

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Illustrative literature descriptive of goods you need all the time gladly furnished.

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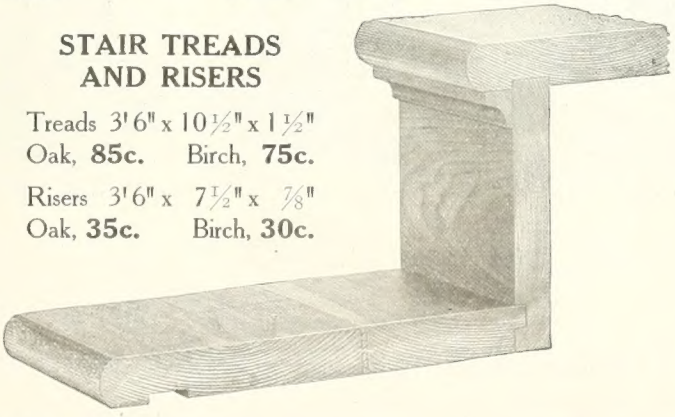
Treads 3'6" x 10½" x 1½"
Oak, **85c.** Birch, **75c.**

Risers 3'6" x 7½" x ⅞"
Oak, **35c.** Birch, **30c.**



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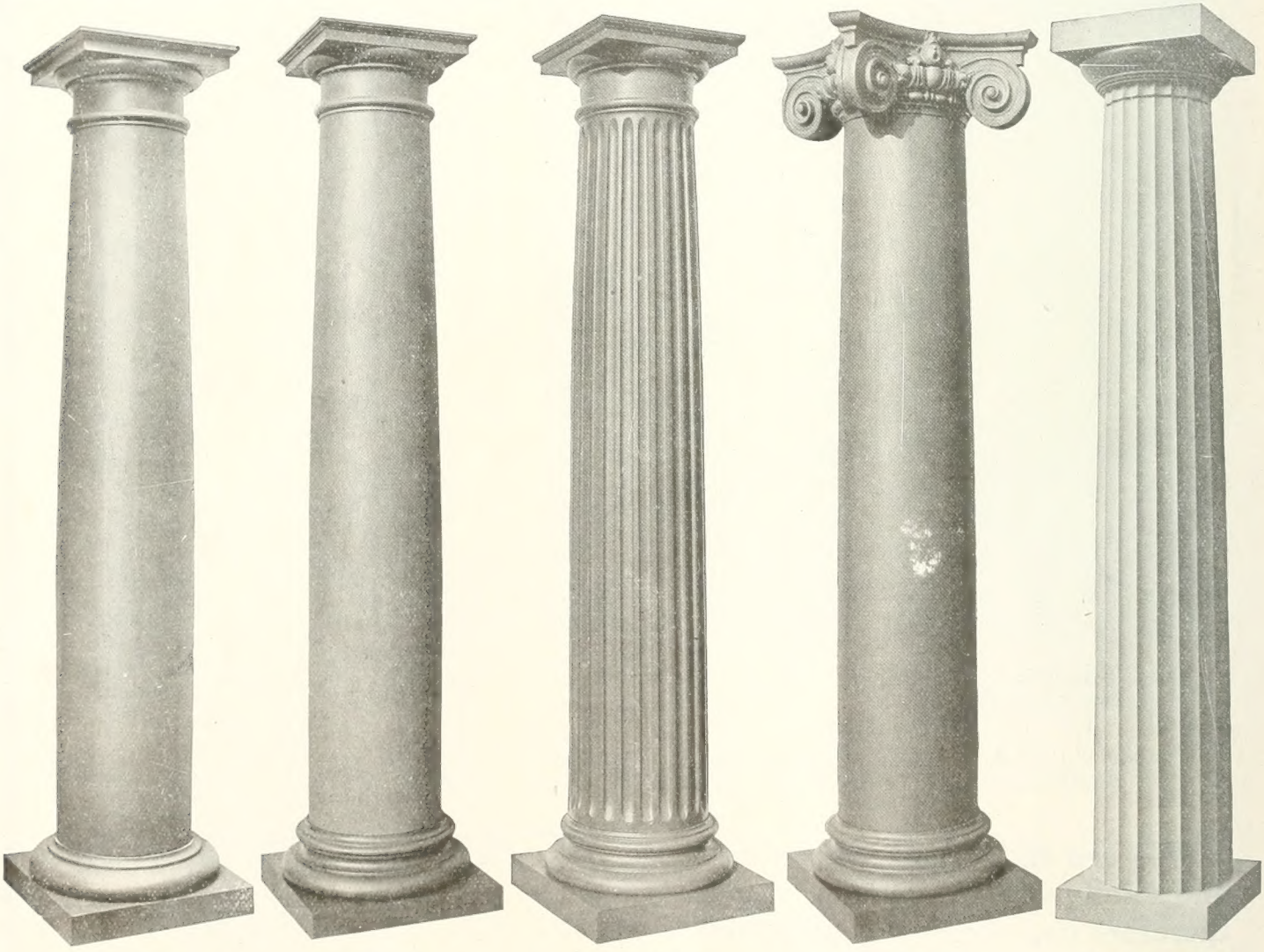
Batts' Staved Columns

Our Columns have a Special *Lock Joint,* which prevents Staves opening, and also increases the Glueing Surface. We use only the best grade of Waterproof Glue.



Design B.L. No. 1

Lh. Dia.	5″	6″	8″	10″	12″
4 ft.	$1.60	1.70	2.25	3.00	5.00
5 ft.	1.85	2.00	2.40	3.25	5.50
6 ft.	2.10	2.20	2.50	3.40	5.75
8 ft.	—	—	3.10	4.20	6.75
9 ft.	—	—	3.50	4.75	7.50
10 ft.	—	—	3.75	5.00	8.00

Design B.L. No. 2

Lh. Dia.	5″	6′	8″	10″	12″
4 ft.	$1.60	1.70	2.50	3.35	5.75
5 ft.	1.85	2.00	2.65	3.60	6.25
6 ft.	2.10	2.20	2.75	3.75	6.50
8 ft.	—	—	3.35	4.55	7.50
9 ft.	—	—	3.75	5.10	8.25
10 ft.	—	—	4.00	5.35	8.75

Design B.L. No. 3

Lh. Dia.	5″	6″	8″	10″	12″
4 ft.	$2.10	2.20	3.00	4.70	6.75
5 ft.	2.40	2.55	3.20	5.50	7.30
6 ft.	2.70	2.80	3.35	5.80	7.60
8 ft.	—	—	4.10	7.70	8.70
9 ft.	—	—	4.55	8.25	9.50
10 ft.	—	—	4.90	8.60	10.05

Design B.L. No. 4

Lh. Dia.	5″	6″	8″	10″	12″
4 ft.	$2.60	2.80	3.70	4.75	8.00
5 ft.	2.85	3.10	3.85	5.00	8.50
6 ft.	3.10	3.30	3.95	5.15	8.75
8 ft.	—	—	4.55	5.95	9.75
9 ft.	—	—	4.95	6.50	10.50
10 ft.	—	—	5.20	6.75	11.00

Design B.L. No. 6

Lth. Dia.	10″	12″	14″
6 ft.	$6.80	8.85	10.60
8 ft.	8.70	9.95	11.95
9 ft.	9.25	10.75	12.90
10 ft.	9.60	11.30	13.55

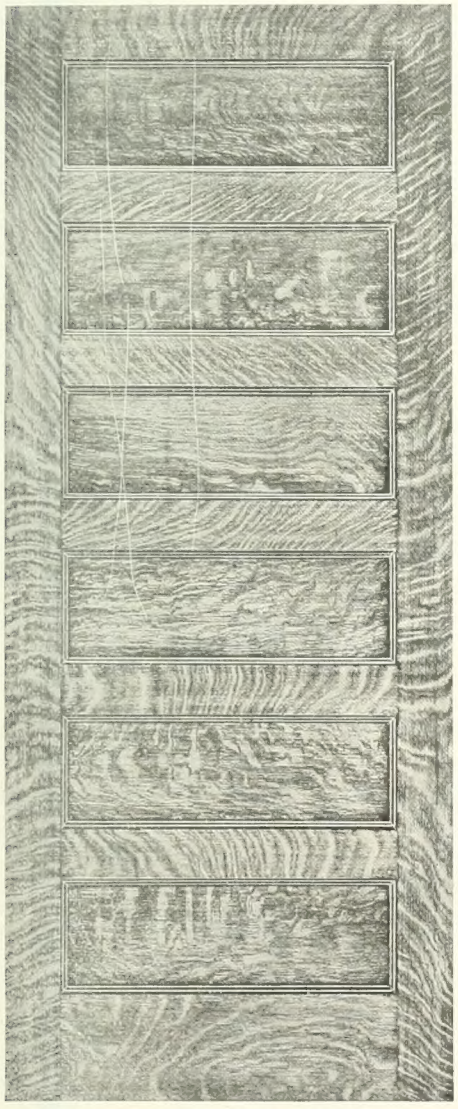
Builders allowed 10 per cent. discount on above, 8, 10 and 12 in. columns in designs Nos. 1, 2 and 3

BATTS LIMITED

Pine Doors, Newel Posts, Frames,

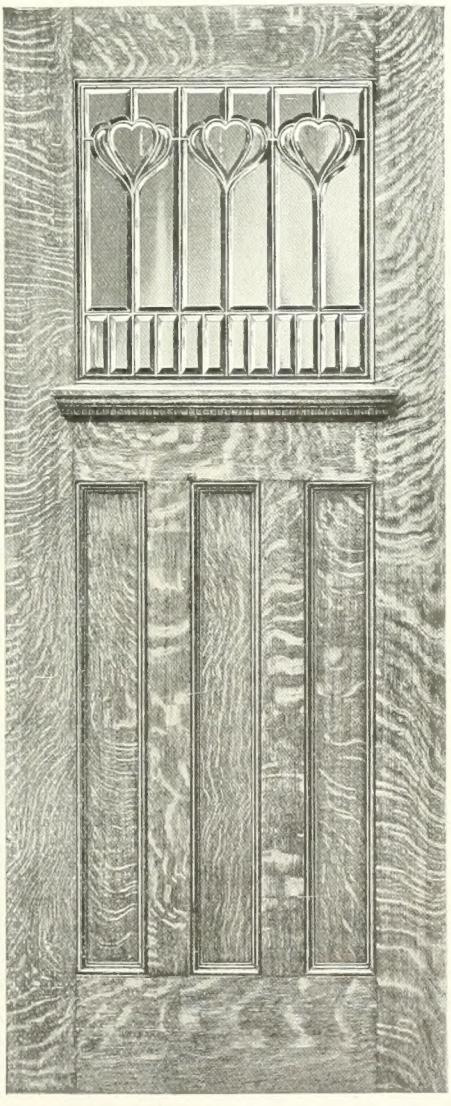
ing and in fact everything required to complete woodwork for your building

Batts' Doors are Reliable Doors at Reasonable Prices



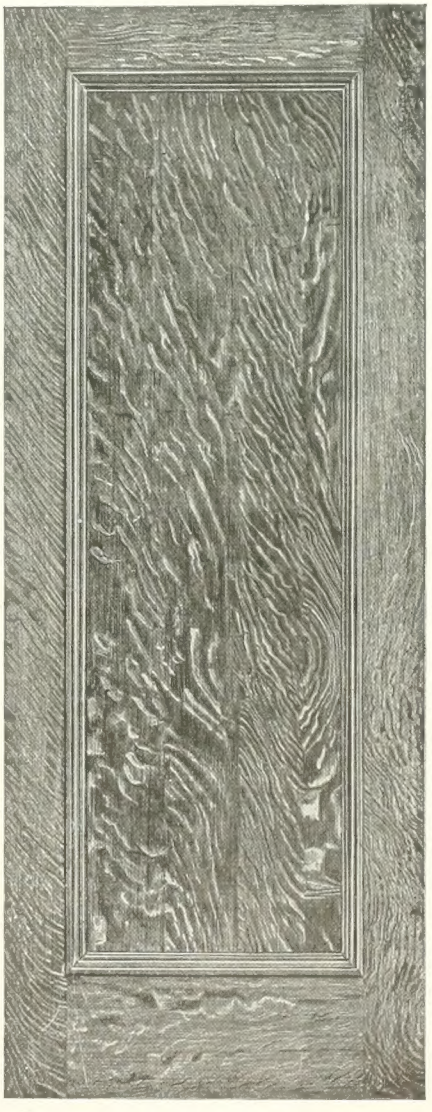
B.L. No. 301, ¼-Cut Oak

Sizes in Stock	
2 ft. 8 in. x 6 ft. 8 in.—1¾ in.	Price $7.40
2 ft. 10 in. x 6 ft. 10 in.—1¾ in.	Price 7.40
3 ft. 0 in. x 7 ft. 0 in.—1¾ in.	Price 7.65



B.L. No. 314, ¼-Cut Oak

Sizes in Stock	¼-Cut Oak	Pine
2 ft. 8 in. x 6 ft. 8 in.—1¾ in.	Price $8.50	$4.00
2 ft. 10 in. x 6 ft. 10 in.—1¾ in.	Price 8.50	4.25
3 ft. 0 in. x 7 ft. 0 in.—1¾ in.	Price 9.00	4.50



B.L. No. 316, ¼-Cut Oak

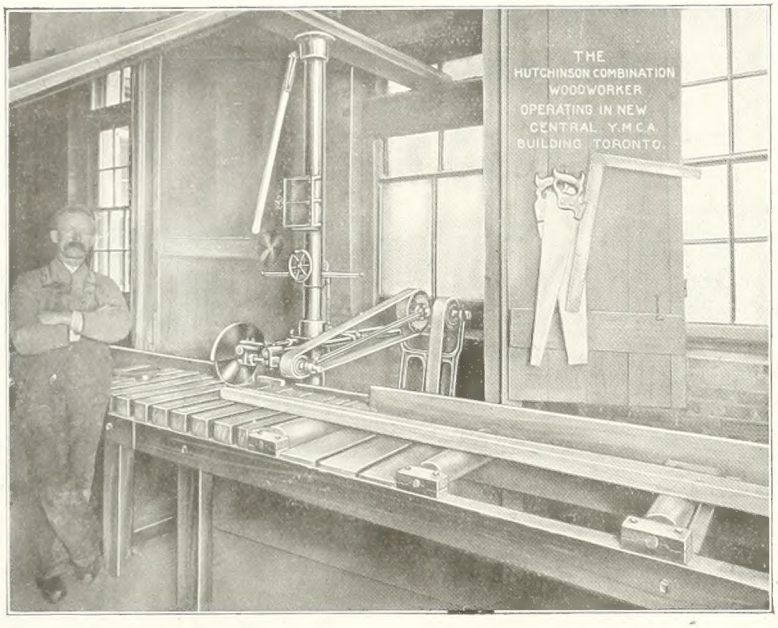
A beautiful and high-class design of inside door

If you do not see the styles of doors here you wish, send for our 1913 catalog, free to readers of The Canadian Builder

West Toronto, Canada

Hutchinson Combination Woodworker

A Guaranteed TIME and LABOR SAVING Machine



Absolute guarantee to save 300 to 500 per cent. over the hand work. Pays a big dividend right back into your pocket.

Electricity only costs from $2 to $3 per month.

READ WHAT IT WILL DO

The Hutchinson Woodworker is particularly adapted for the following every-day work in any carpenter shop or building under construction: Cutting Studs, Rafters, Braces; Boring for Dowelling, Tenoning, Dadoing, Pulley Stiles, Window Sills and Door Jambs; Routing Stair-Stringers, Mitreing of any kind, Tool Grinding, etc.

It can be set to suit any of these purposes in one minute, and once set will do as much work in an hour as a carpenter will do in a day.

The Hutchinson Woodworker can be set up on any job or in a shop within an hour.

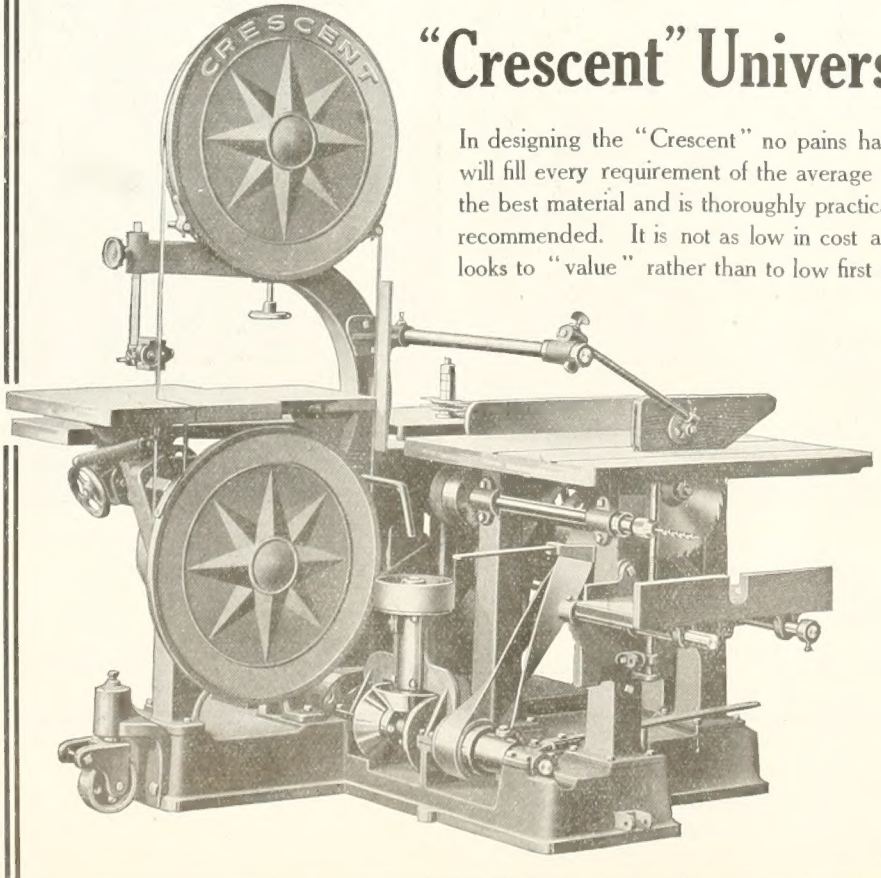
It does not require a skilled mechanic to operate it. Any handy man can get out work upon it.

Write now for catalogue giving full particulars of the machine. It's free to readers of The Canadian Builder.

M. Hutchinson

1011 Eastern Ave., TORONTO

"Crescent" Universal Wood-Worker



In designing the "Crescent" no pains have been spared to make it a machine that will fill every requirement of the average woodworking shop. It is heavily built of the best material and is thoroughly practical and efficient for every use for which it is recommended. It is not as low in cost as some other makes, but to the user who looks to "value" rather than to low first cost we have a machine he can not afford to pass by in favor of any other. It weighs 3200 lbs., and is recommended, when fully equipped, for ripping, cross-cutting, band sawing, jointing, rabbiting, mortising, tenoning, dadoing, etc., etc.

Send for Catalogue and Prices.

We make a Specialty of outfitting Wood-Working Mills with complete equipment of Machinery.

J. L. Neilson & Co.

602 Main St., WINNIPEG, MAN.

You can Save 30 to 40 per cent.

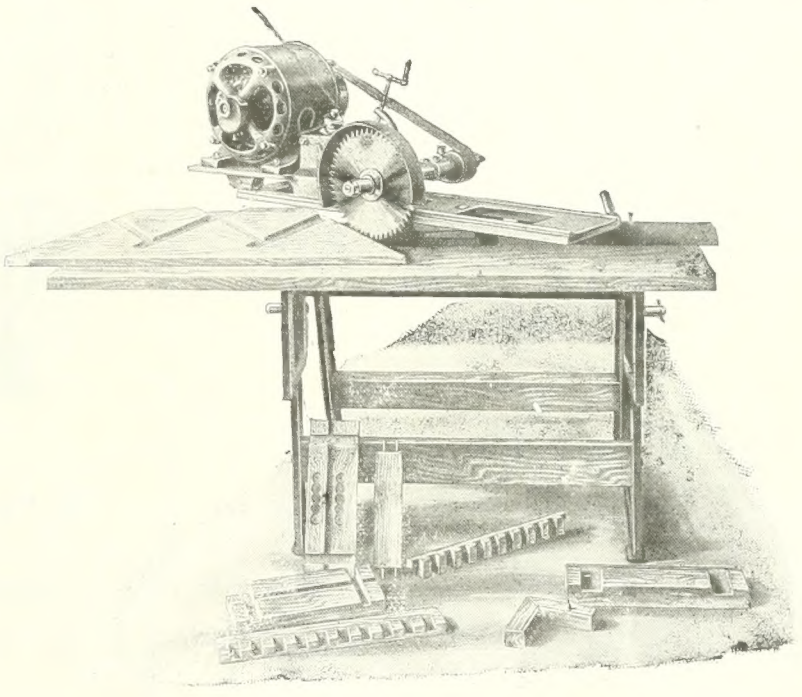
with the Elliot Combination Woodworker

The Elliot Woodworker cross cuts, rips, mitres, dadoes, bores and grinds. It will also house out stair string in any wood and can be readily adapted for practically any purpose required by the Builder or Carpenter

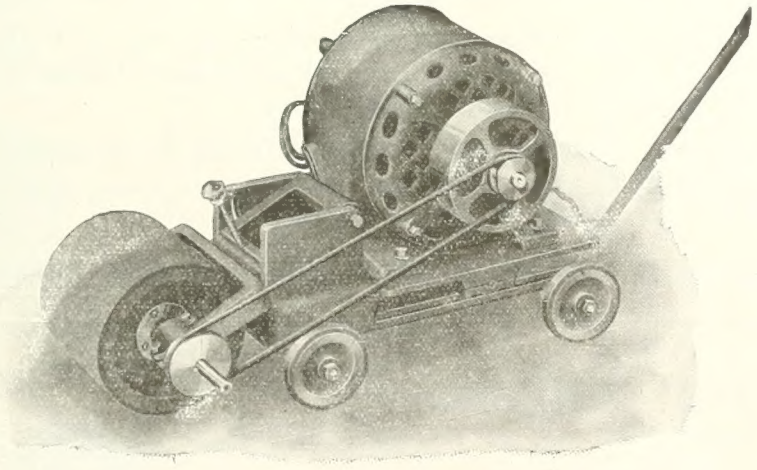
It will operate from any Electric Lamp Socket

No practical, up-to-date Builder or Carpenter **can afford** to be without the Elliot Combination Woodworker.

Write for prices and detailed information



Elliot Combination Woodworker No. 2 machine, cuts 3½ inches thick



The Elliot Sander, operates from electric lamp socket

The Elliot Sander

Is another labor-saving, cost-cutting device that gives universal satisfaction to the Builders.

Used for sanding and polishing hardwood floors.
Saves 50 per cent. of the labor cost and is easily operated.

The expense of operating this machine is very low in comparison with the work it does.

Detailed information and prices furnished upon request

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Bathurst and College Streets
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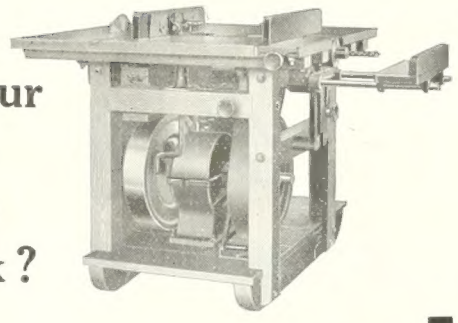
Why Waste Your Profits In Expensive Mill Work?



OR consume valuable time doing finished work by hand? Much of your hard-earned profits slip through your fingers in this way. Stop the leak, and save six men's wages in the bargain—

Use the OSHKOSH "EVEREADY" *Portable* SAW RIG

It costs little—operates for less than a quarter a day—and saws, joints, miters, jig-saws, bores, dados and sands—right on the job—at a tremendous saving of time. Any one can run it. Price includes attachments for all the above work. *Write for free trial offer,* also for descriptions and prices on Oshkosh Mixers, Trench and Centrifugal Pumps.

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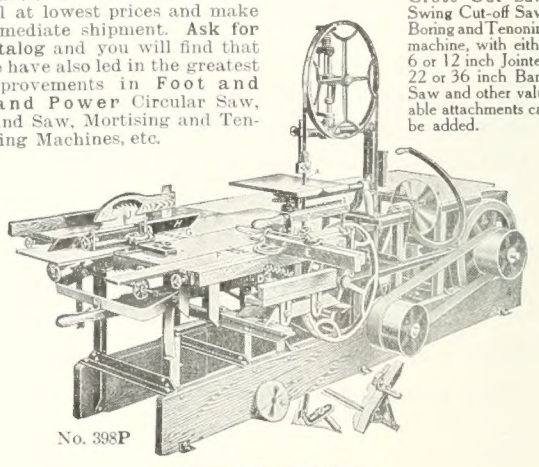
Parks Portable Single and Combination
Woodworking Outfits

We are the originators of the Circular Saw, Band Saw' Jointer Combination; our latest innovation **Swing Cut-off Saw** on same base; long table surface; saw pulls across timber instead of two men pushing long timbers across saw. All machines ready for instant use. Patents on improvements applied for.

Machines are made in large quantities which enable us to sell at lowest prices and make immediate shipment. **Ask for catalog** and you will find that we have also led in the greatest improvements in **Foot and Hand Power** Circular Saw, Band Saw, Mortising and Tenoning Machines, etc.

Circular Rip and Cross-Cut Saw, Swing Cut-off Saw, Boring and Tenoning machine, with either 6 or 12 inch Jointer; 22 or 36 inch Band Saw and other valuable attachments can be added.



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You Can Try The WEBER DOUBLE ACTING Floor Scraper Five Days Free

Give the Weber a thorough try-out right out on the job. Then if you don't want it, return it. Send for full details, also catalog showing the Weber Automatic Sharpening Device, Folding Scaffold Bracket, Folding Saw Clamp, and Handy Cabinet Scraper.

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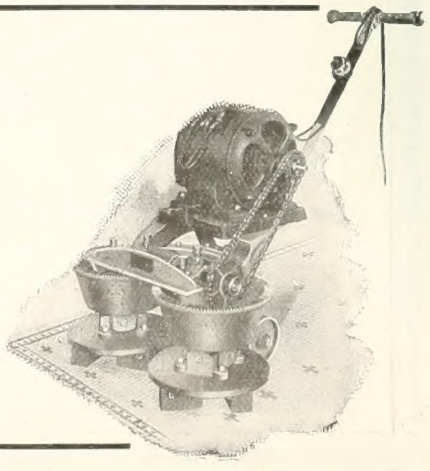
DOUBLE DISC
Will Surface Your Cement, Terrazzo, Marble and Concrete Floors

Better, and for less cost, than any machine in use, which its many users can testify to. Because it has 64 sq. in. carborundum on two 12-inch discs revolving 225 R. P. M., gives it a large capacity at a low cost. Can use in small spaces, and surfaces close to the walls.
Strongly built. Fewest wearing parts. Simple and easy to operate.
For ten years we have built the best Floor Surfacing Machines in the world, **for surfacing all kinds of floors.**
Will do more and better work, and outwear any machine in use.

We also build a complete line of Floor Surfacing Machines for Hardwood Floors
Write for Prices and our Free Booklets

The American Floor Surfacing Machine Co., Toledo, Ohio



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FLOOR SCRAPING OUTFIT

is acknowledged by over three thousand users to be the best and most complete hand operated floor scraping outfit on the market.

The scraper works automatically—a simple pull on the handle is all that is necessary. No stooping. No lifting.

The **ACME BLADE SHARPENER** is the only device of this kind, and is fully protected by patents. With it an unskilled person can sharpen a floor scraping blade perfectly in a few minutes' time, insuring rapid and accurate work.

The **SANDER** attachment gives that smooth finished appearance to the floor demanded by present day builders.

If you want to have your floor finished perfectly then investigate the merits of the **ACME FLOOR SCRAPING OUTFIT.**

Write NOW for booklet giving full detailed information

DECATUR, BULL & CO., 23 Jurors St., Montreal, Can.

Manufactured by JOSEPH MOITKE, Milwaukee, Wis., U.S.A.

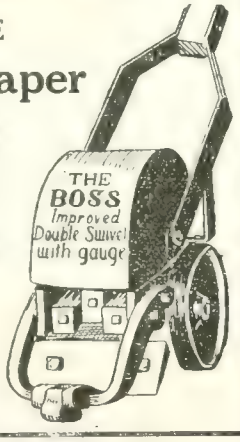
IT WORKS LIKE A PLANE

The Boss Floor Scraper

The Boss is the new Floor Scraper made that will plane a floor without leaving a square cut where knife first starts cutting. Why? Because the Boss is made with a Gage on front, to which is attached a pear-shaped wheel which raises when machine is pulled and lets the knife down gradually.

The Boss can be set for any thickness of shaving; it also can be set for any shaving cut right or left, up or down, to suit the kind of lumber.

It is guaranteed to give absolute satisfaction.



G. J. KEPPLINGER

Main Office: DWIGHT, ILL.

Manufactured also in London, Canada

The "Peace" Patent
Improved
Metal Weather Strip
For Windows and Doors

To Carpenters and Builders this weather-strip constitutes a necessary part of the equipment in the building of factories, offices and residential property. It is wind and dust proof, and reduces fuel bills. Windows work easier with than without it. It does away with storm sash, and lasts a lifetime. Write for illustrated pamphlet or further information to

WILLIAM PEACE CO., LIMITED

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Phone 286 **Live Agents Wanted**

If you are particular about your work on floors write at once to one of these dealers for information about the **Fox Floor Scraper**

Sold in Canada by

THOMPSON AND SUTHERLAND, Ltd., New Glasgow & North Sydney, N.S.
HOOTON & MOORE, Winnipeg, Man.
AIKENHEAD-CLARK HARDWARE CO., Ltd., Winnipeg, Man.
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Five Reasons for Subscribing to The Canadian Builder

It publishes plans of actual buildings suitable for erection by the average builder. It aims at raising the standard of the trade in Canada. It contains items of practical value in every department of the trade. It furnishes special articles by leading experts every month. It gives news of Builders' Exchanges throughout the country.

Asbestos Corrugated Sheathing

Lessens Depreciation

The sum which must annually be spent on upkeep and written off for depreciation of buildings can be greatly reduced by the use of Asbestos Corrugated Sheathing.

A Mill, Elevator, Freight Shed, Factory or Warehouse roofed and sheathed with this material presents a practically everlasting exterior, proof against fire and the elements.

Made of two indestructible materials, Portland Cement and Asbestos, this sheathing is not subject to rust or decay, and never requires painting or waterproofing. In fact it grows harder and tougher with age and exposure.

Asbestos Corrugated Sheathing is made in standard lengths of 4, 5, 6, 7, 8, 9 and 10 feet by 27 inches wide, with corrugations of 2½ inch pitch.

Write for our Booklet 5 which shows in detail the methods we have perfected of attaching sheets to wood and steel framing, and of covering ridges and corners.

Asbestos Manufacturing Co., Limited

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Real Economy in Roofing

That's what
Maltby's Whale-Hide Roofing
Spells

Whale-Hide Roofing has positively no **superiors.** It is much cheaper than its **equals;** but does cost a little more than its **inferiors**

Mr. Builder: Do not commit the protection of your property to the uncertainty of a cheap roofing, which has nothing to recommend it but its low price.

If you believe in the common sense idea that what a man gets is as important as what he pays, we ask you to send for sample of **Whale-Hide** and investigate its quality.

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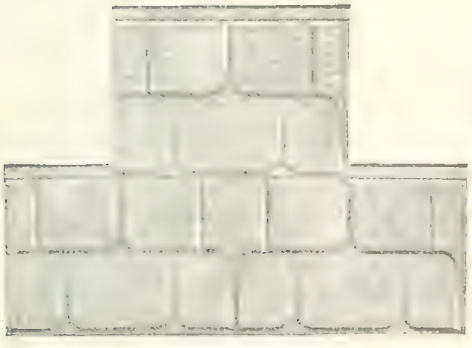
Factory: **New Toronto** *Head Office:* **TORONTO** *Branch Warehouses:* **Montreal and Winnipeg**

Building covered with Acorn Steel Siding and roofed with Safe Lock Shingles

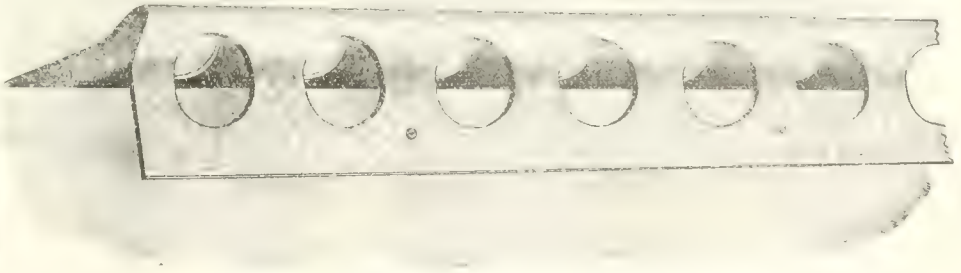
Carpenters and Builders, Attention!

WE now carry a full line of Metal Roofings, Sidings, Ceilings, Plasterers' Corner Bead, Wall Ties, Wall Plugs and all Sheet Metal Goods in stock for immediate delivery to any point.

Get in touch with us at once and ask to see a sample of our new "Ideal Acorn Ornamental Ridge"



Safe Lock Shingles



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The A. B. Ormsby Co., Limited

Head Office: Toronto, Ontario

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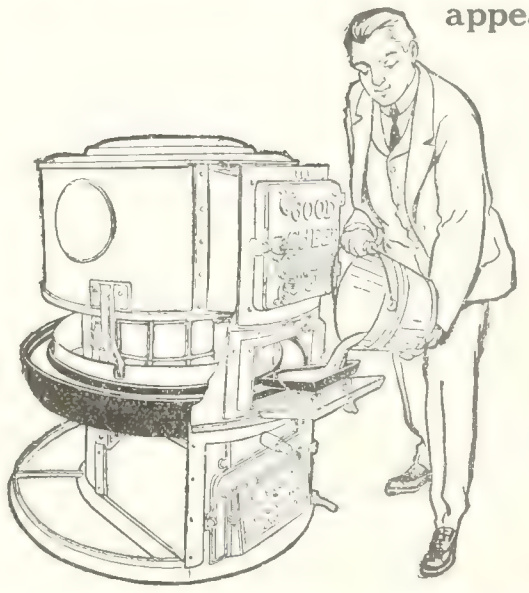
A Comfortably Heated House

appeals to everyone



In our climate, househeating is not a luxury, but a necessity, and so long as you let your heating contracts to the lowest bidder, and without due consideration of the importance of adequate heating provision, so long do you leave your reputation as a house-builder open to criticism. The slight difference in cost of

A "GOOD CHEER"
CIRCLE WATER PAN
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over that of the average heater is a mere bagatelle compared to the enhanced value it gives to the house.

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It's the most modern, most artistic and most successful store front system on this continent and sells upon demonstration to any live, wide-awake merchant.

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"Little Giant" Floor Scrapers

Why not you? They never fail. Ab
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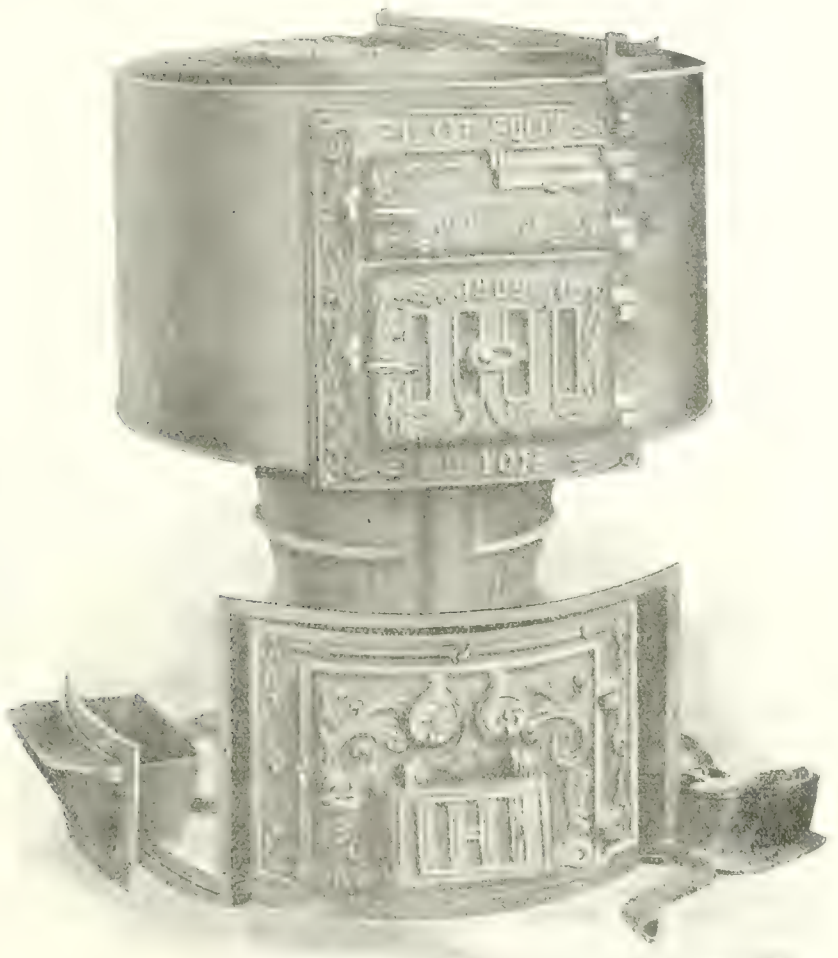

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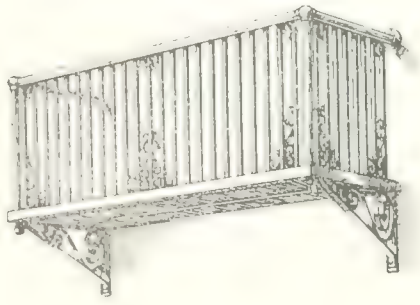

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Liquid (pulp) Black. *Dry Red, Buff, Brown, etc.*

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Concrete Sidewalk Work and Cement Work of all kinds.

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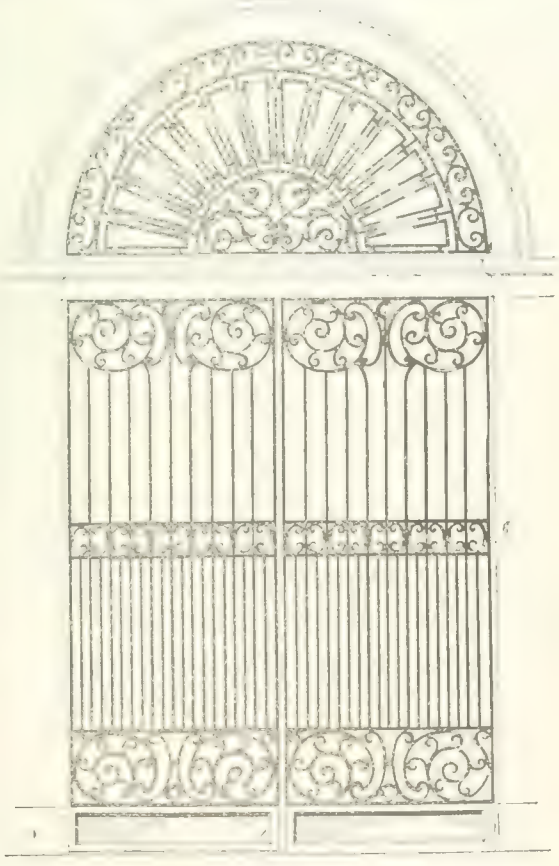

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We are specialists, and can give you high-class work at reasonable prices. Let us quote on your requirements

Stairways—in Wrought and Cast Iron
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"PUDLO"

PATENTED AND REGISTERED.

Makes Cement Water-proof

For

Damp Walls,
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The result of many years research by an eminent British chemist. The ***cheapest*** and ***only safe*** method of water proofing cement and concrete work. Used by British Government, Foreign Governments, Architects, Engineers, Contractors, Etc., Etc., as a preventative against Damp Walls, Flooded Basements, Reservoirs, Roofs, Etc.

"We used **'PUDLO'** in a stokehole near and below head of canal. Result is, **A Good Job."** Ref. 63.

Pudlo increases the strength of Portland Cement.

Write for Booklet of full particulars free on request **Agents Wanted**

The W. H. THORNHILL COMPANY, 160 Princess St., Winnipeg, Man.

Sole Distributors for Canada

Builders' Supplies

Water Washed Sand
Pit Sand
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Prompt Attention Given
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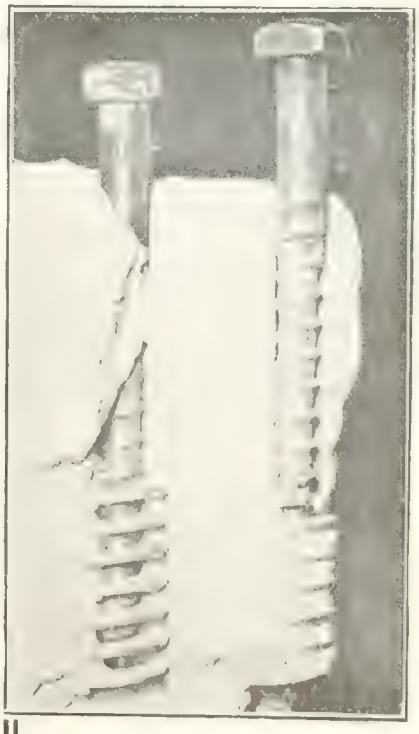

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Richmond Screw Anchor

is an indestructible metal bearing which makes possible the use of screws in cement and similar material.

Positively will not shake out, rust out or loosen.

Not an expansion shield but a solid anchor embedded in material.

Sizes ¼ - 1½. Uses range from the fastening of light plumbing fixtures to the holding of vibrating machinery in reinforced concrete buildings. Also used in heavy concrete construction work.

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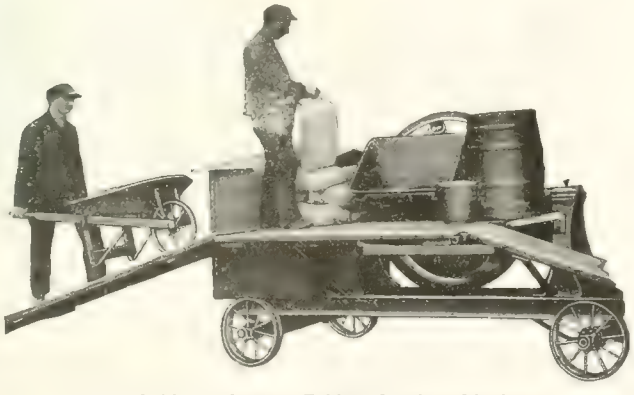
The General Machinery Co., Limited

22 Mulock Avenue : TORONTO

Rotary Gravel Screen for Hand or Power.

Ideal Block Machine equipped with Automatic Tamper.



Batch Mixer showing Folding Loading Platform.

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Block Machines, Brick Machines
Automatic Tampers
Power Drain Tile Machines
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Ornamental Molds, Sewer Pipe
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Rotary Gravel Screens
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Our latest Catalogue No. 25 contains 160 pages; is the most complete and up-to-date work ever issued on Concrete Machinery and Products. If interested in equipping your plant with Machinery which is guaranteed to give satisfaction, write us.

Ideal Concrete Machinery Company, Limited

211 King Street - London, Ont.

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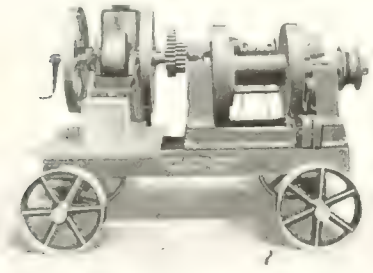
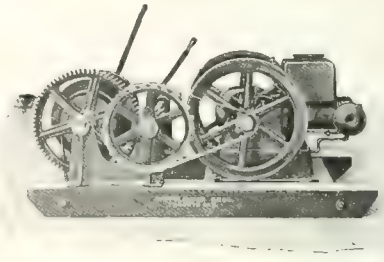
Everything in Con

Builders' Hoists

in 14 different types and sizes, from $85 up to $1950



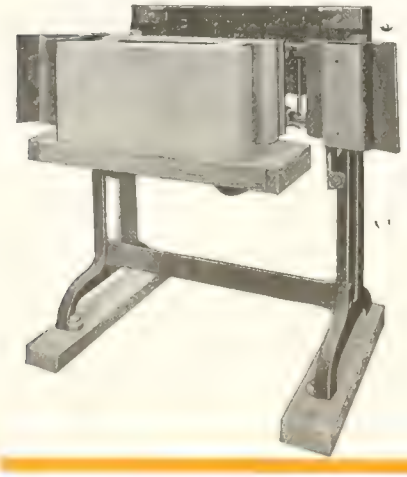
¶ From this range you will certainly be able to get a Hoist to suit your requirements, from the largest to the smallest job. Hoists are equipped with Wettlaufer gasoline engine or steam or electric power as required.



Mr. Builder, if you are not now using a Wettlaufer Hoist, send for our Hoist Catalogue. There's every chance that a saving of from 50 to 80 per cent. can be effected for you. Give us a chance to demonstrate.

Cement Block Machines

¶ We have quite a variety of Cement Block Machines, and also Cement Pressed Brick Machines. We also have a lot of useful information regarding the manufacture of both.

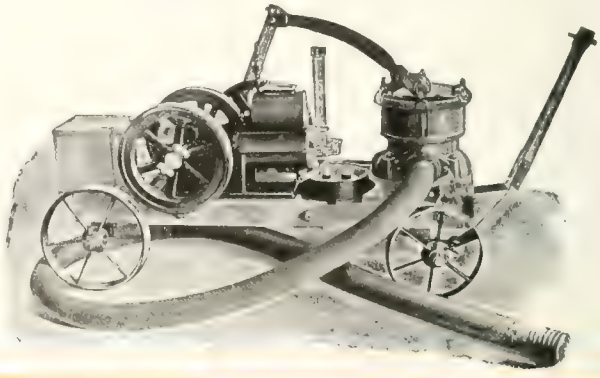


Write us for Illustrated Catalogue, showing Block and Brick Machines. Free to readers of The Canadian Builder.

The Wettlaufer Pump

¶ This pump will do the work of two men at a cost of not more than 35 cents a day. The saving you can effect with one of these pumps will soon pay the original cost. It's just the thing for pumping out cellars, etc.

Send for Catalogue and Price



Wettlaufer Bros.

Office and Warerooms
WETTLAUFER BROS.
316 Lagauchetiere St. W.
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MAYSMITH & LOWE
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A. R. WILLIAMS
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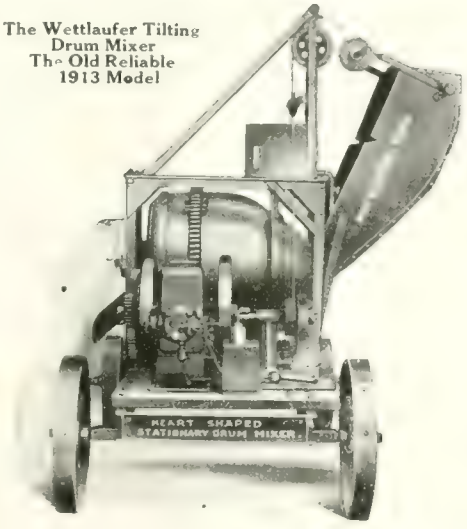
crete Machinery

The "Heart Shaped" Drum

has made the Wettlaufer Mixer famous

The Wettlaufer Tilting Drum Mixer
The Old Reliable
1913 Model



¶ The Heart Shaped Drum produces a perfectly uniform mixture. It holds the material together and turns the batch from end to end.

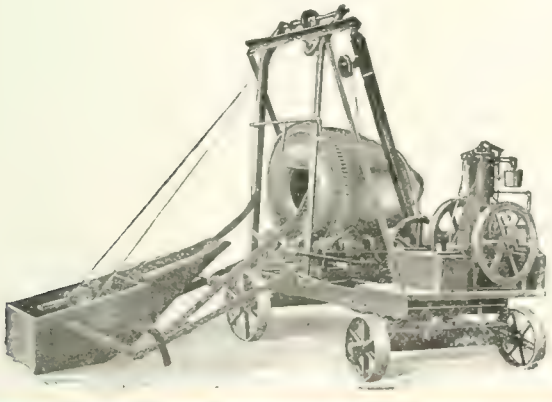
The Power Automatic Dumping Device saves the labor of from ***one*** to ***two*** men.

¶ Parts such as Gears and other castings are made of semi-steel, which is one of those little things which make the Wettlaufer Mixer a machine that lasts.

All bearings are equipped with Improved Centre Oiling System, which increase the life of bearings by 100 per cent.

Why is it you see so many Wettlaufer Heart Shaped Mixers around? Ask the Contractor who is using one—He will tell you they are Reliable, Efficient, and give good Service in every way.

Send for Catalogue illustrating our complete line of Heart Shaped Drum Mixers. You will find it interesting.



The Wettlaufer New Improved Stationary Heart Shaped Drum Mixers.

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The CANADIAN BRITISH ENGINEERING CO., Limited
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The HALLMAN MACHINERY CO.
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Concrete Mixers

Several kinds and built in sizes to suit all classes of work. The many improved features of the London Mixers have placed them in a class by themselves.

¶ We can Save the Contractors Money

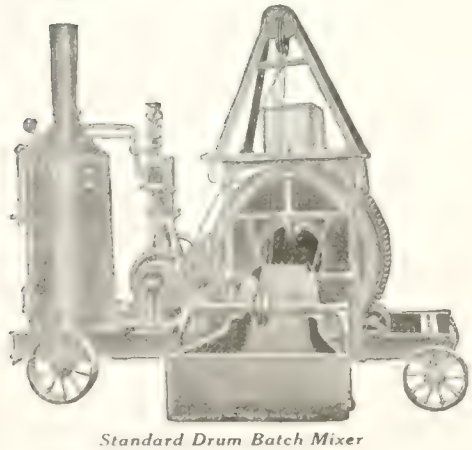
On First Cost
On Cost of Maintenance
On Cost of Operation

No. 2 Automatic Batch Mixer

¶ Every Machine Made in Our Own Factory

Our Machines are not made down to a price, but MADE UP TO A STANDARD

We manufacture a full line of Concrete Machinery and Cement Working Tools. Also a full line of Hoisting Engines and Contractors' Equipment.

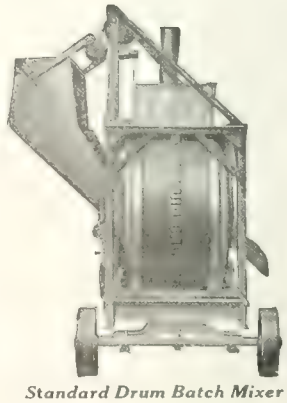


Standard Drum Batch Mixer

¶ We are the Largest Manufacturers of Concrete Machinery in Canada

By manufacturing in a large scale we have been able to offer High Grade Machines at Remarkably Low Prices

Send for our complete Catalogue. It's one you should have constantly by you. Free to readers of this paper.



Standard Drum Batch Mixer

London Concrete Machinery Co., Limited

Cabell St. and Kitchener Ave., LONDON, Ontario

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Medusa Waterproofing
for Cement

Saves Money

Saves Cement

Cement with *one per cent. MEDUSA Waterproofing* and *five* parts sand gives a more impervious mortar than ordinary untreated cement and two parts sand. Look at the saving in cement! It more than offsets the cost of Medusa and leaves a good saving as net profit. **Try It!**

MEDUSA White Portland Cement

For Concrete Building Blocks will give a texture which rivals stone, and in conjunction with Medusa Waterproofing gives a damp-proof concrete block of pure white color or any desired tint.

For Colored Concrete. With Medusa White Portland Cement, concrete of all sorts of permanent colors can be obtained by the addition of small amounts of ordinary pigments.

Send for further particulars, too numerous for this space, and also prices

Free Samples of White Cement and Waterproofing are ready for you. Get your request in to-night's mail.

Stinson-Reeb Builders' Supply Co.

Limited

Montreal

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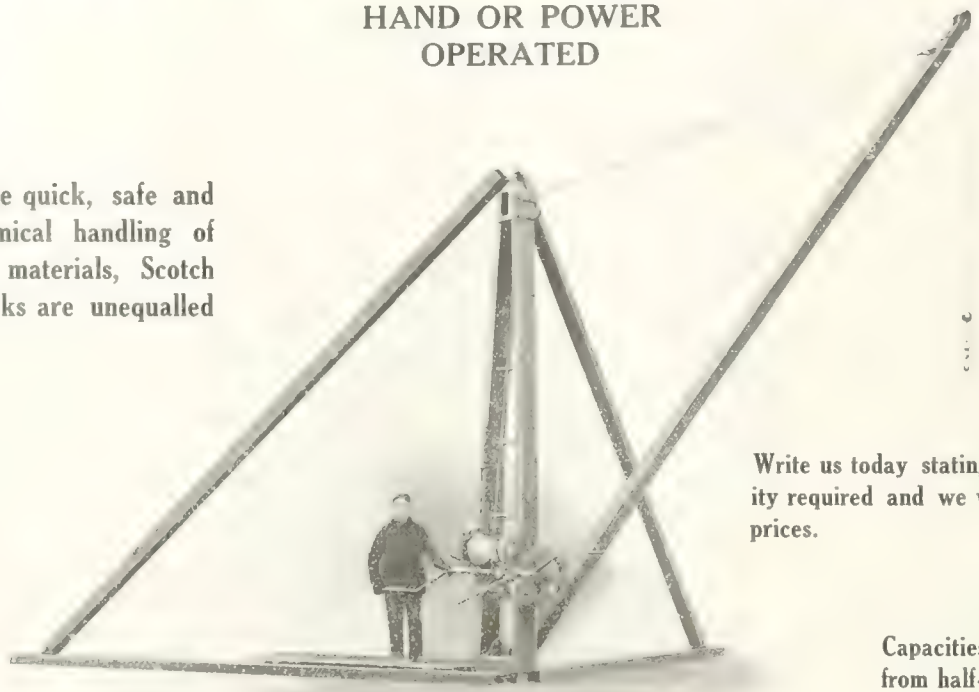
BEATH SCOTCH DERRICKS

HAND OR POWER
OPERATED

For the quick, safe and economical handling of your materials, Scotch Derricks are unequalled

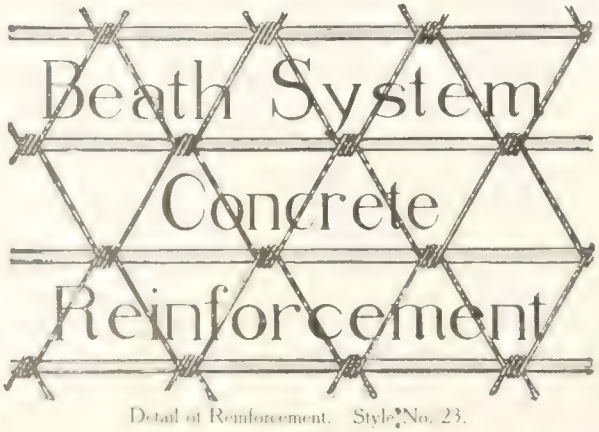


Write us today stating capacity required and we will send prices.

Capacities ranging from half-ton up

Standard Scotch Derrick for Hand Power

Beath Scotch Derricks represent the best of their kind in use to-day. No guess work enters into their make-up. Our staff of Engineers are thoroughly conversant with Derrick Construction. Every detail has received careful consideration, the materials carefully selected, and all parts substantially proportioned, the whole forming a thoroughly dependable machine. ***Investigate the merits of Beath Scotch Derricks.***



Detail of Reinforcement. Style No. 23.

The Beath System of Concrete Reinforcement-Mesh and Bars—applicable to all Reinforced Concrete Construction work—offers advantages which cannot be obtained in any other system.

We have supplied our reinforcement on some of the largest works in Canada, among which are:—

11 Transformer Stations for the Hydro Electric Commission
Lindale Power Company, West Toronto
Petrolea Bridge Co., Petrolea, Ontario
Hamilton Sewers, Hamilton, Ontario
Filtration Plant, Toronto, Ontario
Robert Simpson Co., Toronto, Ontario

These and others have found it entirely suited to their requirements. Can you afford to overlook the Beath System of Concrete Reinforcement?

Our Engineering Department is at your service for preparation of estimates, plans and advice on Reinforced Concrete Construction.

Detailed information on request

W. D. Beath & Son, Limited

20-30 COOPER AVENUE

TORONTO CANADA

Fig. 1.—Six room house for J. A. Mill, Woodroffe, Ont.

Winning Success in the Building Game

How Harry Boyd, a carpenter, and William Boyd, a bricklayer, became interested in the construction of concrete block houses, and built up a successful business in spite of many difficulties.

BY GORDON C. KEITH

The building game offers many opportunities for the man who is ready to grasp them and who knows an opportunity when he meets it. And they are more numerous to-day than they were six or seven years ago. Then, for instance, there was a widespread misconception regarding concrete block construction, while to-day we find buildings of all kinds constructed of this material, which are substantial, sanitary, fireproof, durable and economical.

To-day a progressive workman can start in the concrete business with a small amount of capital and a good concrete machine and be assured of success. He can start in, if he wishes, making only the regulation building blocks, and as the list of customers and volume of trade grows, he can gradually add drain tile, brick making, ornamental and special molds of a wide variety of designs for various decorative purposes, fluted or plain columns, balustrades, pedestals, gateway ornaments, etc.

Then he does not have to buy a lot of machinery. The concrete block business is one which can be gradually enlarged and machinery purchased to suit the needs of a particular locality. Machines are on the market built on the unit system, so that an individual machine and molds may be purchased according to the market of the products and the capital of the man who enters the concrete block business.

Back in 1906 it took some courage to enter a new business, such as concrete block making then was. Throughout the country might have been seen crumbling walls erected in the infancy of concrete blocks. The experimental stage has, however, been replaced by an age of blocks that withstand tropical heat and arctic winters.

One day opportunity knocked at the door of Messrs. Harry and William Boyd, Osgoode, Ontario. In 1906 Harry, who had worked at the carpenter's bench, bought a concrete block machine to make blocks for a house for his father. His subsequent branching out into the concrete business, when he saw his opportunity, and how he developed it so that a large factory was necessary to supply the demand for concrete blocks and shapes both for the trade and for houses erected by his brother and himself, makes an interesting story which is best told in Harry Boyd's own words:

"I started as a carpenter's apprentice at the age of eighteen and worked at the trade four years during which time I had picked up a fair understanding of most of the branches of the building trade. In 1906 my father signified his intention of building a small house of concrete blocks and asked me if I knew where we could get a new or second-hand block machine. I immediately sent for catalogues and in a week had about a dozen packages of literature and catalogues describing as many machines. We soon got them boiled down to two machines, one was the Ideal and the other a machine making the same sized block but with a single core and having only two cross webs. Before we could decide on which to take we drew out a full size section of the blocks that each machine would make and chose the Ideal as producing the best proportioned block as far as strength was concerned and being the least liable to collapse when using a wet mixture on account of the three cross webs. We ordered this machine at a higher price even considering that we only intended to use it on one building.

Saw Possibilities in the Concrete Block Business.

"I had only been operating the machine a few days when we saw the possibilities of the concrete business, so my brother and I got together and decided to buy more attachments, a set of tile molds, etc., and start

Fig. 2.—W. B. Bartram's 11 room house, Ottawa.

making stock for sale. We did not build that proposed house until the next year, only selling what blocks we could make for verandah piers, foundations, etc., as the public has a prejudice regarding concrete blocks, and rightly so considering the class of work that was done when they were first introduced as building material, having neither strength, stability, or good appearance.

"Our second year we built two houses, the third—four, the fourth year—eight houses and a church, until at the present time we are doing over $30,000 worth of business in the seven months of our season.

"At first we made only one style of block with a rock face. At present only about 25 per cent. of our work is natural color rock, most of the balance being bush hammered with tooled margin and white sandstone finish, with the natural color rock in several patterns in foundations. We also use vertical tooled work to some extent especially for jambs, quoins, corners, etc."

Their Efforts Rewarded With Success.

The beginning of Boyd Bros. in the concrete block business reminds one very much of the old adage: "We have to creep before we can walk." The first output was sold to builders for verandah foundations and piers. In 1907 they built their first house. It was rather crude and of dark grey rock face design yet it represented permanent repair-proof construction.

Studied Architecture When Architects Would Not Recommend Concrete Blocks.

In those earlier days the architects in Ottawa and surrounding territory were averse to using concrete blocks. This was when Harry Boyd's enthusiasm and confidence in his work, showed itself. He was thoroughly convinced that concrete blocks had merit and he decided to design and build a number of houses to demonstrate his faith. With that in view he immediately began a course in architecture and the houses became an actual fact. For sometime past Boyd Bros. have had all the work they can handle from some of the leading architects in Ottawa.

They employ from eighteen to twenty men and only operate their plant during the warm months, possibly eight months of the year. They do quite a large business throughout the small towns adjacent to Osgoode and ship the bulk of their product to Ottawa for house construction. Mr. Harry Boyd is in charge of the plant, does the detailing and looks after the manufacture of blocks and ornamental work. Mr. Wm. Boyd, who is a practical brick layer, superintends construction, as most of their work has been put up by themselves.

A successful and profitable business has been built up by these men from very small beginnings to present proportions because they gave close attention to details and were always endeavoring to produce the best material possible. The accompanying illustrations show a number of houses erected by Boyd Bros. and give an idea of the usefulness of concrete blocks for various types of buildings and the artistic effects that may be obtained. The years in which the houses were constructed are added so that the readers may note the improvement.

Fig. 1.—Six-room house 24 x 30 ft. Cost $2,700; hot air heating; built for J. A. Mill, Woodroffe, Ont., in 1908. Boyd Bros. architects.

Fig. 2.—Built for W. B. Bartram, Echo Drive, Ottawa, in 1908; size, 29x32 ft.; eleven rooms; hot water heating; birch finish; cost $5,000.

Fig. 3.—Built for Judge Smith, Britannia Bay, Ottawa, in 1908; size 38x38 ft.; ten rooms; Ideal rock

Fig. [illegible] [illegible] Osgoode, Ont.

Fig. 9.—A 9 room concrete house built for A. J. Cameron, Ottawa.

Fig. 7.—Concrete veranda on B. Slattery's residence, Ottawa.

Fig. 10.—An interior view of Boyd Bros' factory.

Fig. 8.—A 9 room farmhouse, erected for A. Bradley, Carsonby, Ont.

Fig. 11.—A section of Boyd Bros.' yard.

faced blocks colored red sandstone; hot water heating; cost $5,000; architects: Bungalow-Croft.

Fig. 4. Methodist Church at Osgoode, Ont., built in 1910; size, 28x36 ft.; seats 150; hot air heating; cost $4,500. This includes vestry and choir which are not shown in the photo.

Fig. 5.—Small public school, Osgoode, Ont., built in 1911; size 32x36 ft., with 10x10 ft. hall; cost $3,200; Boyd Bros., builders.

Fig. 6.—Cohen's store, Osgoode, Ont., built in 1911; size 26x50; cost $4,500; Boyd Bros., builders.

Fig. 7.—Concrete verandah, B. Slattery's house, Riverdale Ave., Ottawa, Ont.; posts, rails, steps, etc., are all white concrete; M. C. Edy, Ottawa, architect.

Fig. 8.—Allan Bradley's farm house, Carsonby, Ont., built in 1911; size 32x32 ft.; nine rooms; cost $3,200.

Fig. 9.—A. J. Cameron's house, 5th Ave., Ottawa, Ont., built in 1912; size 25x30 ft.; nine rooms; cost $4,000.

Fig. 10.—View of interior Boyd Bros. plant at Osgoode, Ont. An Ideal automatic power tamper is used in this factory. Special white faced blocks and ornamental concrete work curing may also be seen in this photo.

Fig. 11 is a view of yard and plant of Boyd Bros., showing large stock carried for prompt delivery.

Color for Concrete Work

Coloring-matter mixed in mortar is sometimes used to give a uniform color to the mixture of the entire wall. The cement, sand and coloring-matter are mixed together dry, and it is advisable to experiment a little to find how much color is needed to give the desired shade. The mortar will appear several shades darker while wet than after it has dried.

By mixing five pounds of coloring-matter with a bag of cement, the following colors are obtained.

Raw iron oxide will give bright red.

Roasted iron oxide will give brown.

Ultramarine will give bright blue.

Yellow ochre will give buff to yellow.

Carbon black or lampblack will give gray to dark slate.

Manganese dioxide will give black. (Use eleven pounds per bag of cement.)

A mixture of equal parts of carbon black and red iron ore gives dull reds. In all cases the addition of mineral colors cause a loss of strength, but this is not important, since the color is used only in the surface coat. Lighter shades may be obtained by using one-half to one-third the quantities of coloring-matter given above.

The additional expense of coloring a surface layer three-fourths of an inch thick will vary from half a cent to two cents per square foot.

It will be seen that any desired color may be obtained by varying the color of the aggregate or by the assistance of mineral coloring-matter.

There are numerous methods of attaching wire fencing to concrete posts. Some makers place staples or wire loops in the green concrete; others make holes in the posts. The former method is not desirable, because the fastener can not be located exactly where the wire of the fencing will come when the post is set in the ground; then, too, the fastener will eventually rust or break off and will thus injure the looks of the post. On the other hand, holes through the posts weaken them and therefore this method is, in general, unsatisfactory.

The simplest, easiest, and cheapest way of fastening a wire fence to a concrete post is by encircling the post with a wire one size less than the corresponding wire in the fence proper, and by twisting this wire around the strand of the fence. This is done in two ways. The fastening wire is placed around one end of the fastening wire, is twisted upon itself and then carried around the post and twisted on the other side to the same wire. The latter method is known as the "Western Union twist." Either plan is good, but care must be taken to draw the fastening wire tight, or else stock trying to get through the fence may raise or crush down the fencing with their heads. If any trouble is experienced the post should be roughened at the fastening point with a cold chisel.

Expansion and contraction of the fence due to heat and cold are cared for by the tension curves or "kinks" in the woven-wire fencing and no fear may be felt in drawing the fastening wires as tight as necessary. Wooden nailing strips should never be embedded in the posts, for moisture will swell the wood and crack the concrete.

The Advantages of Preparing Concrete by Machine

By Eric A. Forson

The time has arrived when the value of concrete for building purposes is being realized. This fact is born out by the number of architects who are specifying concrete foundations on stores, dwellings and buildings of every description. Before very long we may expect to see solid concrete buildings the rule instead of the exception. Edison, the great inventor, has perfected a concrete house, several of which have been built in the United States. It seems that architects in this country are afraid to put up concrete buildings for they know that once they are up it is a hard job to make any alterations. It seems a shame that concrete should suffer simply because an architect is afraid he will make some mistake which will have to be corrected. However, machines for the manufacture of concrete blocks and bricks are now being manufactured in large quantities, and this will, to a large extent, dispel this fear, for a building constructed of these would be easier to alter should such be necessary.

Concrete Yet in Its Infancy.

As yet, however, few Canadian builders have been asked to put up a solid concrete house, their efforts being confined to concrete foundations, cellar floors, and walks and driveways. Some builders, perhaps, don't get this much. For this reason, the man who only does a small amount of concrete work each year hesitates about buying a concrete mixing machine. There is that old saying that "He who hesitates is lost," and the man who puts off the purchase of a mixing machine is losing money. No matter if he has never had a concrete foundation to put in, nor never expects to get one (which is impossible if he intends to stay in the business) it will pay him to buy a machine to do the work for cellar floors and sidewalks. If he has not enough work to require a power machine, a small hand mixer can be purchased for $60 or $75.

Advantages of a Mixer.

There are many arguments in favor of making concrete in a machine over the old method of mixing on a board. The first is from the viewpoint of economy. Cement enters largely into the making of contract and cement costs money. In mixing concrete on a board,

Solid Cement Houses that are Dry, Warm and Sanitary : : :

Prepared by Commission of Conservation

A workingman's home, built entirely of concrete. The walls have continuous cavities, a unique feature in this kind of building

IN the construction of houses, cement may be used for walls, partitions, stairways, roofs and floors. It can be applied to advantage in the making of bathroom, laundry and kitchen equipment. It is easily kept clean, it is fireproof and construction can be carried out cheaply and rapidly. In addition, its plastic qualities make it easy for the architect to devise attractive designs.

Solid cement walls are, of course, almost invariably damp and cold, but by using "continuous dead air" cavities this defect has been overcome. The building of such walls, however, requires special moulds, and efforts to construct the latter so as to build a wall quickly and cheaply have been largely successful.

The house illustrated herewith, is that of a better class artisan's or workman's home, having outside dimensions of 24 feet by 24 feet by 26 feet high. The walls are of cement and have continuous air cavities. The partitions are of solid cement three inches thick, and the floors and the roof are of reinforced concrete. The building contains a basement; three rooms and a hall on the ground floor; and three rooms, a hall and a well equipped bathroom on the second floor.

The cement construction work, including the setting up and taking down of the forms, occupied some 17 working days and this in spite of the fact that the moulds had never been tried before.

The total cost of the house, complete with heating, plumbing and lighting apparatus, painting and finishing, will be about $1,800 and can be profitably rented at $16.00 to $18.00 per month. The maintenance charges for such houses need not be heavy. Fire insurance is not essential. They are practically frost, damp and vermin proof, and much less fuel is required than in the ordinary veneered house. Herein is surely a suggestion of great importance in the solution of the housing problem in Canada.—*A.D.*

An interior view of the home illustrated above, showing cement walls and partitions. The floor is overlaid with wood.

after a batch has been made, the grout (watery cement), the very best part of each batch, is lost over the sides or is left on the mixing board. In a mixer, this cannot happen; everything is saved. If you are mixing on a board with a mixture of 5 to 1 (five parts of stone and sand to one of cement) the loss of grout would be such that if you had a machine you could mix at 6 and 7 parts of stone and sand to one of cement and get [illegible] results. A hand machine, working steadily for a week or ten days, would pay for itself in that [illegible] in the amount of cement saved alone not even figuring on the saving in labor.

Makes Better Concrete.

The quality of concrete made in a machine is far superior to that manufactured on a board. If any man doubts this, let him take a cubic yard of white sand and dump on top of this a cupful of that red powder

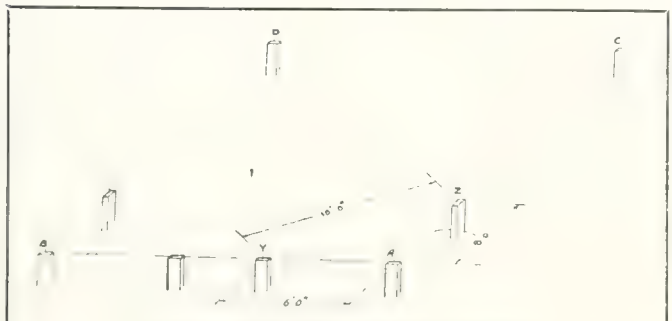


Fig. 1. Method of placing stakes for foundation.

from which paint is made. Mix this up on a board and see how many times you have to turn it before all whiteness is removed from the sand and the color is uniform. Then, take the same quantities and put them in a concrete mixer and see how many revolutions of the machine will be necessary before you have a nice, uniform mix. Then, too, when mixing on a board, the men are apt to get lazy and will not turn the stuff as often as is necessary. At other times, when the boss is looking on, they will do better. The result is that you get a good batch one time and a poor one the next. In order to have good concrete, it is necessary that each and every grain of sand must have a coating of cement around it and this is impossible when mixing on a board.

Mixer Saves Labor.

Another big point in favor of the machine is that it takes fewer men to make more concrete, with the result that considerable money is saved that would otherwise be spent for labor. The very best a gang of four men can do when mixing on a board is to make eight or nine cubic yards of concrete per day, and this rate could not be kept up for six days in a row; the labor would be too much. The same number of men on a small power machine would turn out from 25 to 30 cubic yards per day and keep it up every working day in the year. The ordinary small hand mixer will mix from 15 to 20 cubic yards per day, with only two or three men. This is twice the amount of work that could be done by four men on a board, and the labor of one or two men is saved. With labor at from $1.50 to $2.50 per day, it can be seen that the saving here well warrants the use of a mixing machine.

The hand machine is mounted on two wheels, is light and handy and can easily be moved by one man from one job to another.

These facts will be proved by any concrete mixing machine manufacturer, and in view of this, a builder should look very carefully into the proposition before he says it will not pay him to purchase a machine. If he is doing any concrete work at all, he needs one. Even if he has not enough work to keep a machine going steadily, he can rent it to some other builder who is not wise enough to buy one for himself, but it is pretty certain that with concrete foundations, cellar floors and concrete pavements to be made, the machine will not be idle very long.

Laying Out Concrete Foundation Work

Prepared by Universal Portland Cement Co.

Buildings are usually located with reference to some existing object, such as a highway, a drive, or some other buildings. Where the location of the building depends upon some other object, the first line to be determined should be the one influenced by the location of that object. With this established, it may be used as a base line, and the corners which come on it should be located next. In case the building is not located with reference to some other object, the base line should be chosen arbitrarily, and the corners and other lines laid out from it.

One corner will probably be located with reference to some other object, and the other corner on the base line will be located a distance from the first equal to the length or breadth of the building. Mark these by stakes driven in the ground, the exact points being indicated by a nail driven in the stake. These corners are referred to in Fig. 1 as "A" and "B," A B being the base line.

After the corners on the base line are definitely located, proceed to locate another corner, marked "C" in Fig. 1. The line which runs from "A" to "C," perpendicularly to the base line, must first be located. To secure a true right angle at "A" measure accurately 6 feet from "A" along the base line toward "B", and mark this point carefully by a stake and nail, as indicated by "Y". Now measure out exactly 8 feet from "A" in the direction of the corner to be found, and

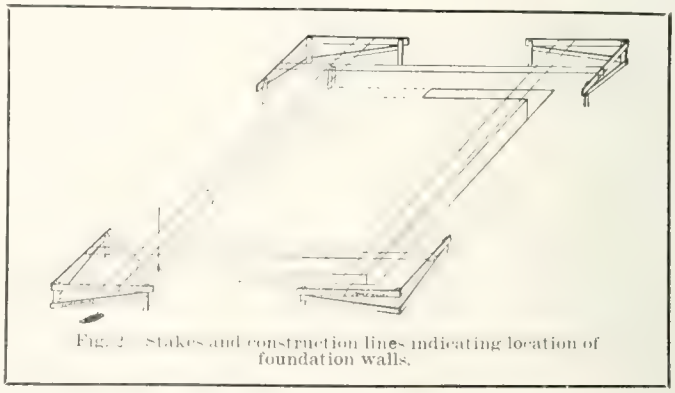


Fig. 2. Stakes and construction lines indicating location of foundation walls.

mark a curved line on the ground; measure from "Y" 10 feet to a point on the curved line; drive a stake at this point and then check the measurement, and mark the location accurately with a nail in the stake. This point is marked "Z" in Figure 10. The point "C" will lie on the line "AZ" projected. Corner "D" can be located from "B" the same as "C" was located from "A".

Should the proposed structure be irregular in outline, it will be necessary to project the base line far enough to locate all corners from it. In such a case three or more points may be located on this line, but

the location of the other corners will be accomplished as described.

Locating Construction Lines.

After having the corners located it is necessary to establish these points in a way that they will remain permanent during the construction of the foundation, and this is best accomplished by building at the corners, fence-like forms. (Fig. 2). These should be constructed back at least 8 feet from the foundation lines and should be long enough to permit of marking both the inside and outside foundation lines on the horizontal or top boards. Brace the frames sufficiently to withstand the pressure of the tightly drawn cords, which they must support as nearly horizontal as possible.

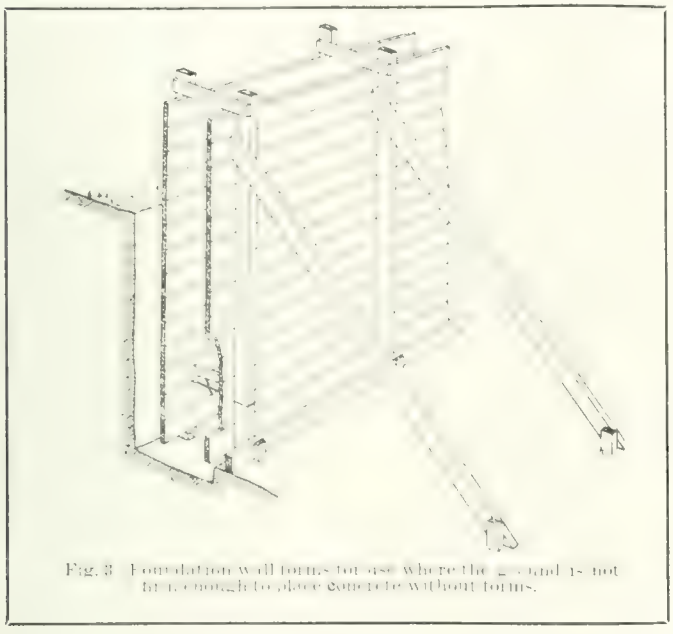


Fig. 3 Foundation wall forms for use where the ground is not firm enough to place concrete without forms.

The points on the corner boards will be located by drawing a cord from one board to the other, bringing it directly over the nails at the two corners on the same line; these points should be marked accurately on the board by a notch, or by cutting a shallow groove with a saw. This cord represents the outside line of the foundation; the inside line will be indicated by measuring in a distance equal to the thickness of the proposed foundation and stretching a cord between these two points. Carefully mark these points on the board in some way different from the marks showing the outside line.

Excavations.

With the lines properly located and marked at all corners the excavating may be started. It is usually recommended that a foundation be put down below the point reached by frost, but unless the natural drainage of the soil is poor it will be unnecessary to excavate to a depth of more than three feet, provided solid earth is found at that depth. A foundation must be esablished on solid ground, all loose earth or loam being removed. Also if "made ground" or a fill be encountered this must be removed to whatever depth is necessary to secure solid earth. Excavating for a foundation until a suitable earth footing is secured may result in an uneven bottom in the foundation trench. Such a condition might prove somewhat annoying if the foundation was to be of stone or brick but with concrete the construction will progress the same on an uneven as on an even bottom.

In preparing for a foundation in soil which will stand in a vertical position and when provision for a basement is not necessary, an excavation may be made into which it is possible to place the concrete without the use of forms. When this is practicable, the width of the trench should, as nearly as possible, be the same as that desired for the breadth of the foundation.

When the concrete is to be placed directly into an excavation, care should be taken to protect the edges and to keep dirt out of the concrete. This can be accomplished by placing two or more short pieces of 2-inch lumber across the trench and upon these 2 x 12-inch plank, so placed that the project over the edges of the trench about an inch.

A strip of burlap, building paper, or some similar material should be tacked along the edge of the board on the bank of the excavation opposite that from which the concrete is to be deposited. This covering should hang into the trench far enough to protect the walls at a point where the concrete strikes when dumped from the wheelbarrow.

Forms for Foundations Below Ground.

Sometimes because of the nature of the soil, or possibly because a team and scraper are used in removing the earth, the walls of the excavation cannot be kept perpendicular. In such cases forms must be provided for that portion of the foundation below ground, as well as for the portion above ground if there be any.

Unless forms for the whole foundation are to be put up at one time it will be best to build them flat on the ground, in units of convenient lelngth, and then erect them in place. By having the forms constructed in this way they may be removed and used again, with the minimum damage to the lumber. In building forms flat, the stringers should be carefully leveled and the uprights and sheeting carefully placed in the correct relative position, otherwise the form will be askew when erected.

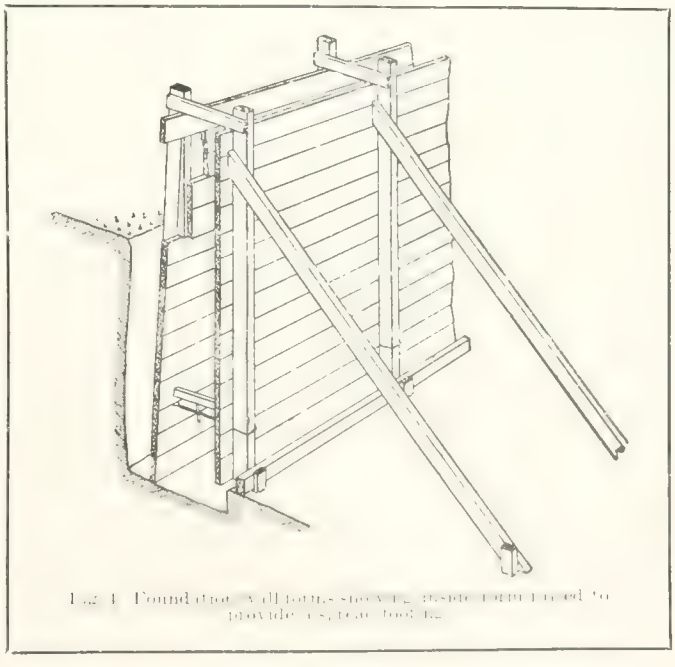


Fig. 4 Foundation wall forms, showing inside form placed to provide for projecting footing.

If the forms are to be built in position, first place the stringer shown at the bottom of the inner form, Fig 3, so that when the upright 2-by-4's and the sheet-

ing are in place, the inside face of the sheeting will be in line with the inner face of the proposed wall. Nail the lower end of the uprights to the stringer and attach the top board of sheeting to hold the vertical 2-by-4's at the proper distance apart. This frame must now be plumbed carefully and held in place by the braces extending between the upper end of the 2-by4's and stakes driven into the ground. The remaining sheeting boards may then be placed, starting at the bottom. With so much of the inner form set, the outer one can easily be placed and fastened

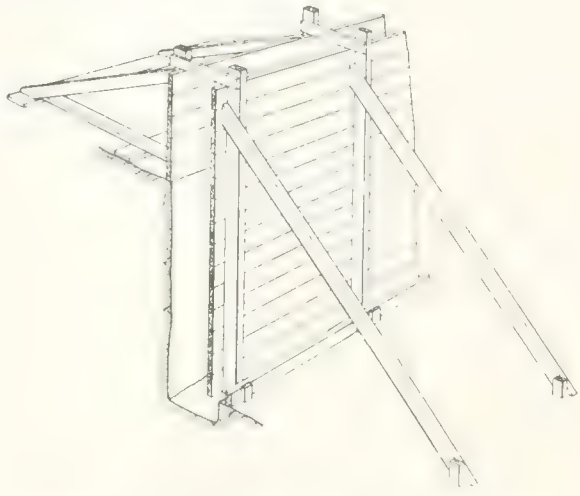


Fig. 5. Foundation wall form for use where inner forms only are required to extend below ground line.

to the inner one, as shown in the sketch. On account of the small space in which to work, the outer part of the form can more easily be built in sections as described, and lowered into position. When the forms are not to be handled in sections, it will be advisable to "break joints" in placing the sheeting, for by so doing, the form will be somewhat stiffer and the alignment will more easily be maintained. In erecting forms one must bear in mind that they are to be removed and when there is only a narrow space between the forms and the earth wall, provision should be made for their removal by a means which will result in the least damage to the lumber.

It will be noted in the sketch (Fig. 3), that the outer form is allowed to rest on stones, so that the lower sheeting board is raised a short distance from the floor of the footing excavation. This allows the concrete to spread out at the bottom of the wall, providing a wider base, which is sometimes desirable.

Instead of supporting the outer part of the form by independent bracing into the earth, it will be better to wire it to the inside section. Spacing blocks of a length equal to the thickness of the wall, should be inserted to keep the two sections of the form in the correct relative position. The wires are then twisted with a piece of iron or a large nail, until the outer section is drawn against the spacing blocks. The top of the uprights are fastened together with cleats (K), as shown in the sketch. If the wall is high it may be necessary to put in additional wires and blocks near the centre of the uprights.

Some means must be provided for removing the spacing blocks as the concreting progresses. This can be done by attaching a wire to the block by which it can be withdrawn after being knocked loose.

Fig. 4 shows a type of form to be used when a wide base is wanted. This provides for a batter on the outside face of the foundation. The details of construction are the same as given for Fig. 3 with the exception that the bottom sheeting board on the outer form is allowed to rest on the floor of the excavation. In case it is desirable to make that part of the wall extending above the ground level plumb, small wedge-shaped blocks can be attached to the 2-by-4 uprights of the outer form, and the sheeting nailed to these blocks.

In Fig. 5 is shown a type of form used when the character of the soil will permit of placing concrete directly against the earth, doing away with that part of the outer form below the ground level. The inner form is erected as described in Fig. 3 and the concrete placed up to within a few inches of the ground level. When depositing concrete in this type of form, care must be exercised, as dirt is likely to be knocked off the sides of the bank into the concrete. The edge of the excavation should be protected with boards, as previously described. The small outer form is built in sections and set up as shown in Fig. 5, and the concrete for the remainder of the wall placed in the usual manner.

It will be noted that all forms can be built with stock length lumber, requiring very little sawing, which permits of the lumber being used later for other purposes. If a smooth face is wanted, dressed lumber should be used.

Foundations Above Ground.

Foundations for monolithic and concrete block structures need not be carried up above the ground line, as is customary with cement plaster, frame and brick buildings erected on a concrete base. Where the walls are to be continued up of monolithic concrete or concrete block, the top of the foundation should be leveled off, so that the forms for the walls may conveniently be placed thereon. The top of the foundation should not be trowelled, as trowelling makes it more difficult to secure a good bond between the foundation and the

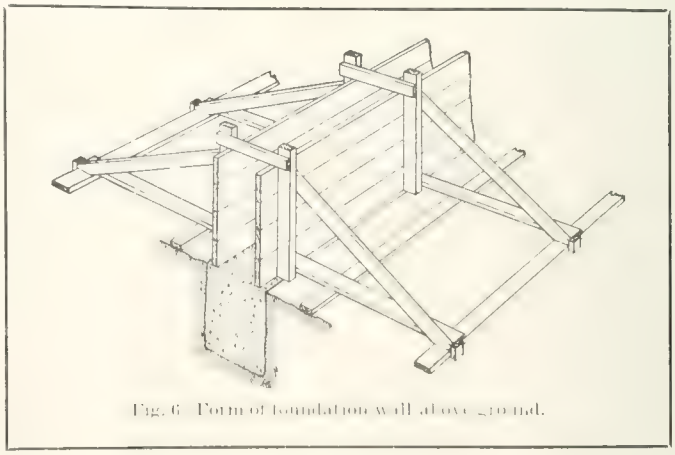
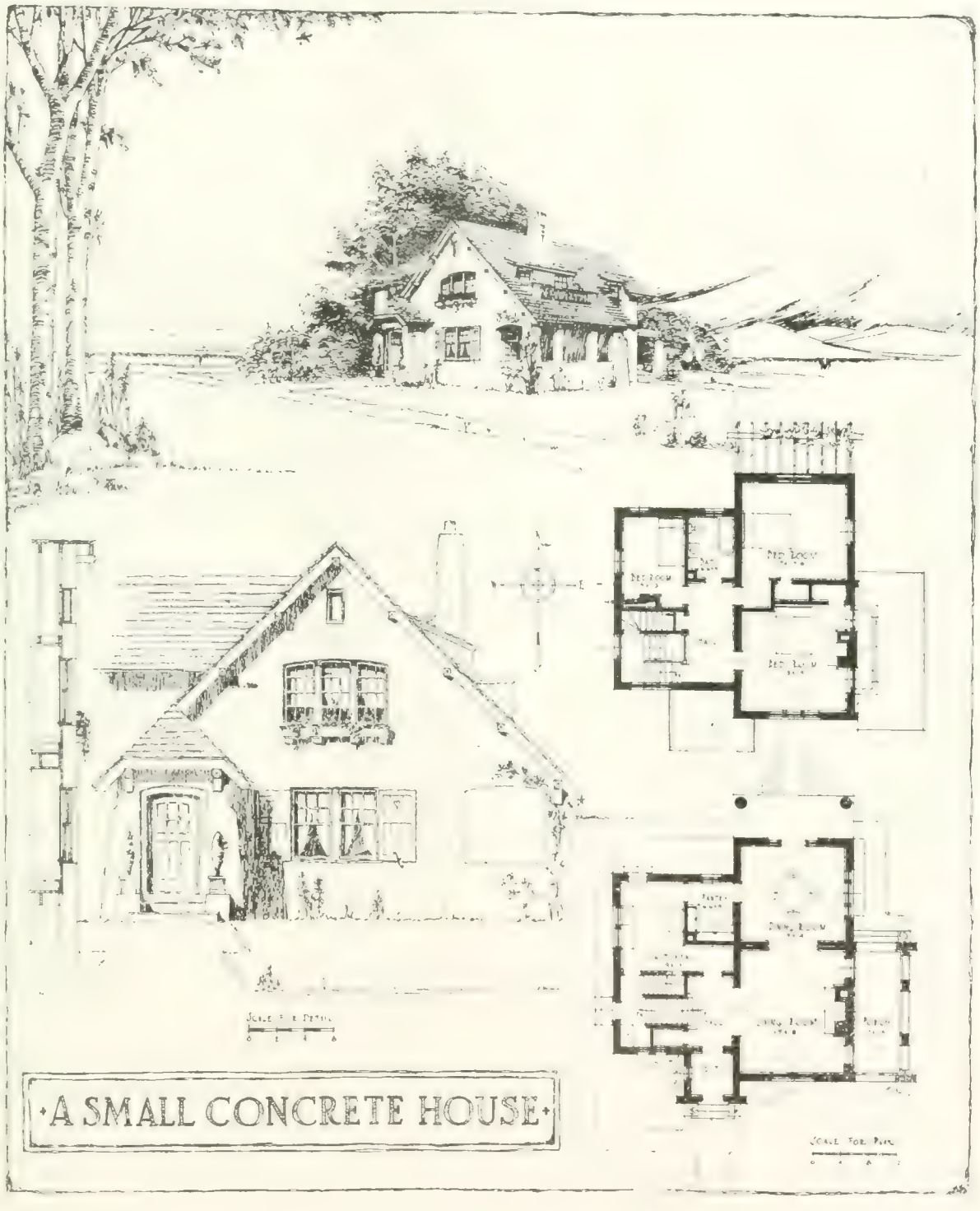


Fig. 6. Form of foundation wall above ground.

wall proper, when the latter is to be continued up.

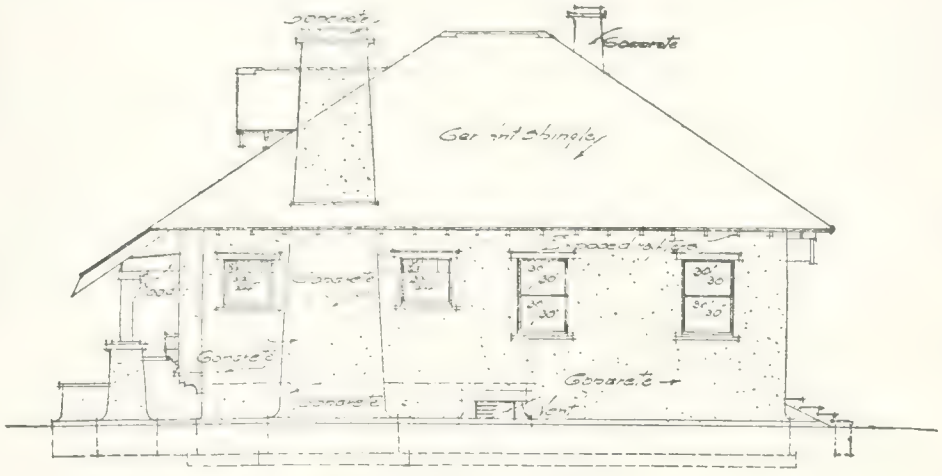
It is quite desirable, of course, that the floor of all buildings be somewhat higher than the surrounding ground level, and to make this possible it is customary to carry the foundation of buildings other than monolithic and concrete block, a short distance above ground. For this purpose, forms are required. Suitable types of forms for projecting the foundation walls above ground are shown in Fig. 6.

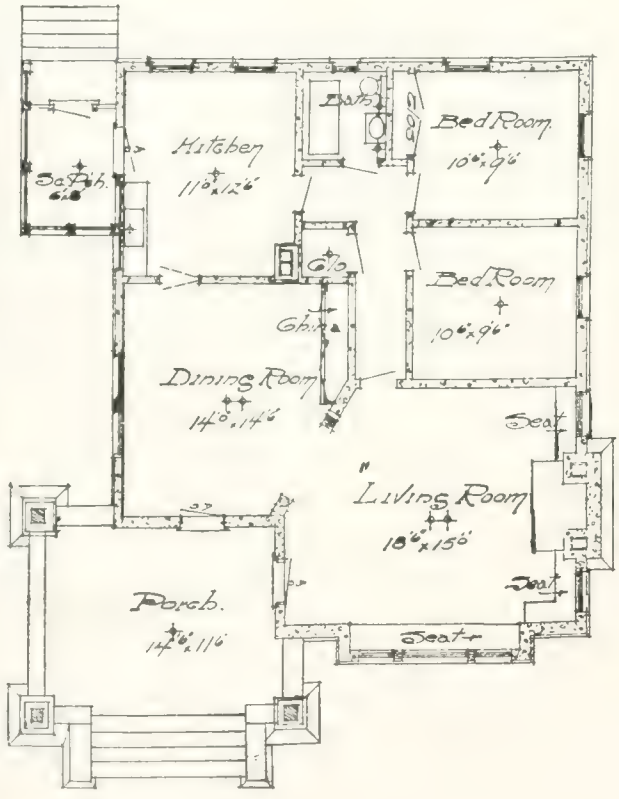
The forms shown in Fig. 6 can either be constructed in sections and then set into position, or built in place, depending somewhat on local conditions. If the inner and outer parts of the form are built separately, in



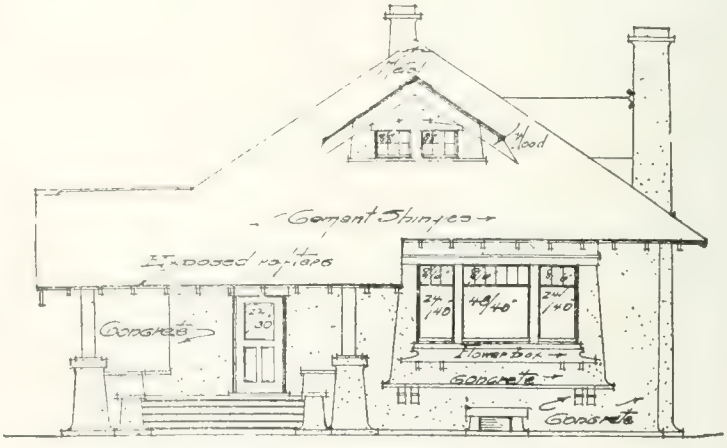
Prize house, designed by Clyde W. Smith in a competition by Blaw Steel Construction Co., Pittsburg.

Plans and Elevations of a Concrete House

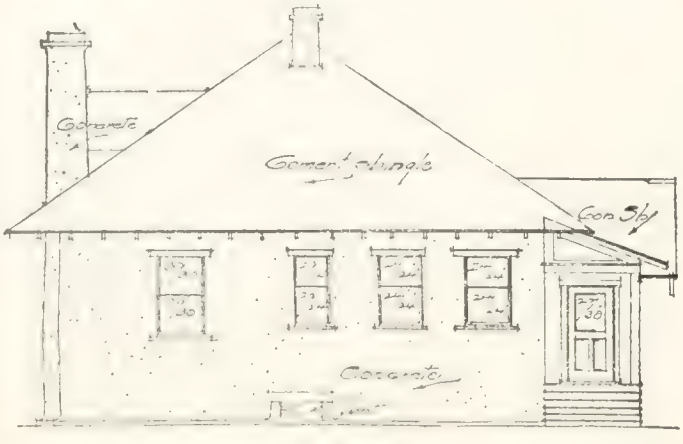




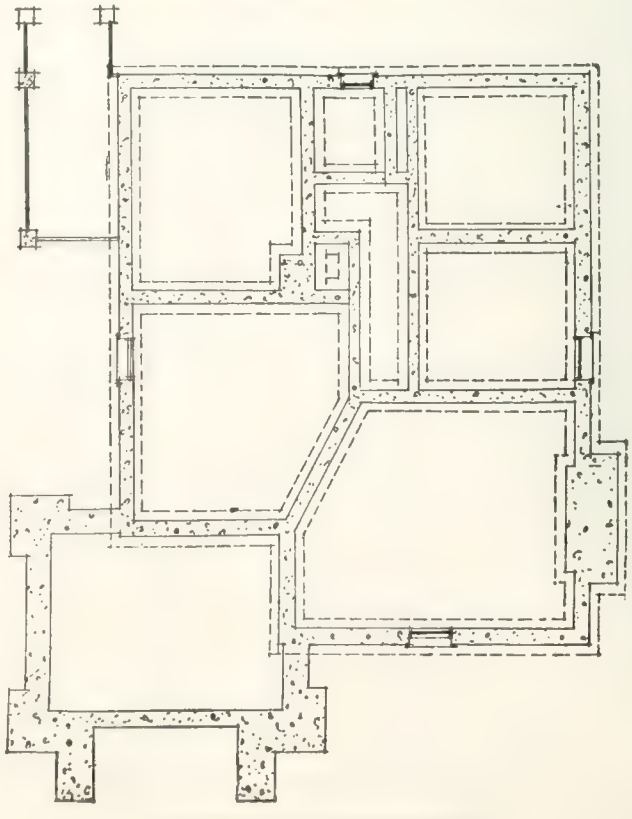
Ground floor plan.



Front view.



Rear view.



Foundation plan of concrete house.

sections, they may be leveled carefully and plumbed as units, while if built in position, care must be taken in placing each timber. In all cases the bottom boards of the sheeting should be flush with, or a little below the top edge of the trench. The top boards of the sheeting should be the height of the finished wall.

From the figure it will be noted that the forms are suspended over the trench and not allowed to rest on the new concrete. This is accomplished by placing stringers on the ground a short distance back from the trench, supporting the triangular frame bracing.

If the building is of large dimensions, considerable lumber will be required to provide forms so that the whole job can be executed at one time, therefore it will be found cheaper to build the forms in sections the stock length of the sheeting boards. Four to six sections will be ample, unless a large force is employed. The forms can be removed and used again when the concrete has hardened sufficiently. By planning the work in this way a small amount of lumber will make all the forms necessary for the foundation of a large building.

Construction of Concrete Stairways and Steps

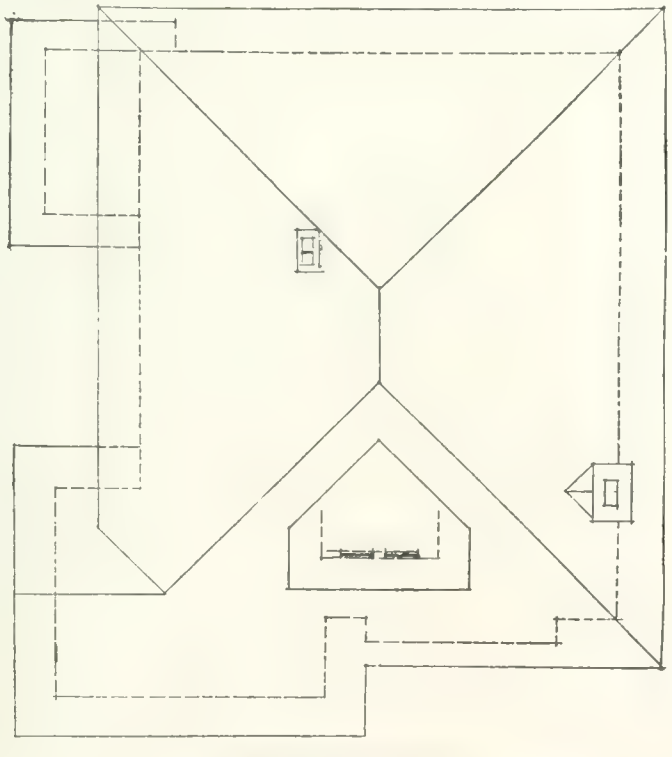
If the building is to have a basement, or if it is to be more than one-storey in height, concrete steps or stairways, will need to be provided. This work can be accomplished easily, and with the minimum amount of form lumber, by following the procedure laid down in the following paragraphs.

Basement Steps.

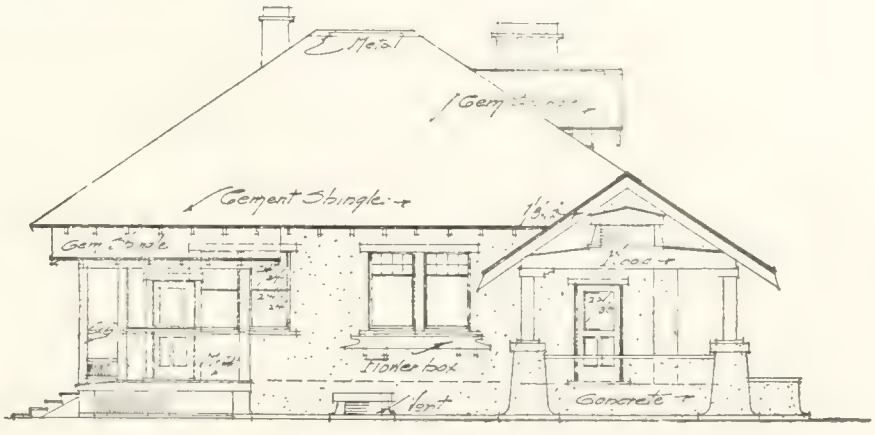
The first step is to excavate the required space, after which the forms should be erected for the side or retaining walls. Simple forms, as shown in Fig. 1 will answer. There is an advantage of building these forms in place, and bracing them rigidly, one against the other at the top and bottom; a smaller amount of lumber will be required, however, if one form is used first on one side and then on the other, bracing against the opposite wall. After the first side wall has become sufficiently strong, the forms are removed, the cleats are reversed, and the forms reset on the opposite side.

When in position, the forms for the side walls will

Plans and Elevations of a Concrete House



Roof plan of concrete house.



Left hand side of concrete house.

rest upon the floor of the excavation made for the steps. As the wall will project above the ground at the building line and slope from this point to the opposite end of the entrance, an outside, rectangular form will be required for this portion, and should be constructed and established the same as the form shown in Fig. 6 of the article "Laying out Concrete Foundation Work," published by The Canadian Builder. The top of the inside form is attached to the

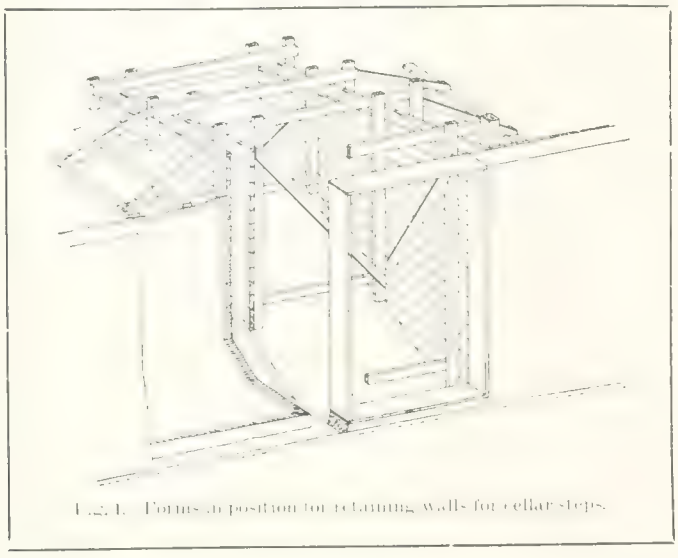


Fig. 1. Forms in position for retaining walls for cellar steps.

outside form, and, in a small way, will help to support it. It will be noted that the sheeting boards are placed horizontally, for by so placing them, less cutting is required and, therefore, less waste of lumber.

If the forms for the side walls are put up so that both can be filled at the same operation, each should be braced rigidly at the bottom against the side of the excavation while the other is being filled. After the concrete is in place on one side, the braces within the forms on the opposite side must be removed only as the concrete is placed, for by the pressure of the green concrete on one side, both forms will be pushed

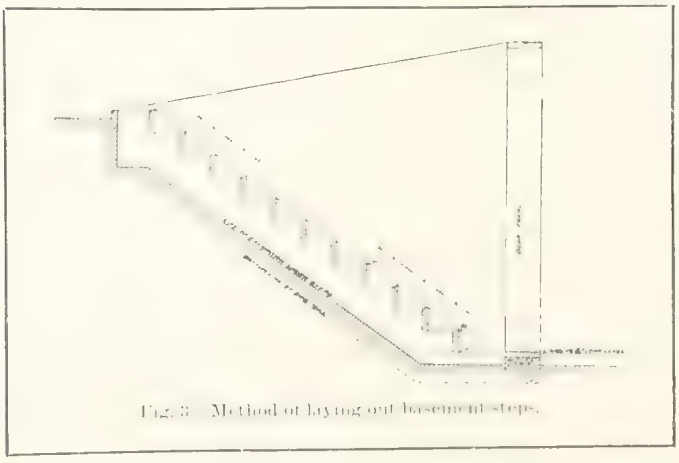


Fig. 3. Method of laying out basement steps.

out of line unless sufficient bracing is maintained until the pressure is equalized by the concrete in both forms.

Step Forms.

The best type of form is shown in Fig. 2. Cross pieces are wedged between the side walls and assisted by a bracing, supported from a frame, also wedged between the walls. For a starting point mark on the side wall the position of the top of the finished landing, which should be the same elevation as the basement floor. (Fig. 3). Measure out along this line from the face of the building wall a distance equal to the width of the proposed landing, less the thickness of the material to be used as cross forms; this point will be designated as "Q." From "Q" measure vertically a distance equal to the rise of one step; this point which will be referred to as "R" indicates the point to which the upper outside corner of the cross form will come.

Locate a point at the junction of the face of the side wall with the building wall, a distance from the level of the finished landing equal to the rise of four or more steps; measure out from this point in a horizontal direction a distance equal to the tread of one less number of steps than used in getting the elevation, plus the width of landing, less the thickness of the riser form; this point will be known as "W." Draw a line along the face of the wall through "R" and "W." Starting at "R" the distance "X" between points can be selected from Table "A." After these points are located, project a vertical line through each by the use of a plumb level.

Table A

Distance "X." (See Fig. 3)

Rise in inches	TREAD IN INCHES							
	8	9	9½	10	10½	11	11½	12
6	10	10 1/16	11 1/4	11 11/16	12 1/16	12 1/2	12 15/16	13 7/16
6½	10 3/16	11 1/16	11 1/2	11 15/16	12 7/16	12 13/16	13 3/16	13 11/16
7	11	11 1/16	11 13/16	12 3/16	12 11/16	13	13 7/16	13 15/16
7½	11 3/16	11 11/16	12 1/16	12 1/2	13	13 5/16	13 11/16	14 3/16
8	11 11/16	12	12 5/16	12 13/16	13 5/16	13 5/8	14	14 7/16

The cross pieces which are held in place by wedges, should be cut about a quarter of an inch shorter than the distance between the walls. In placing these bring the face flush with the vertical line, the upper outside

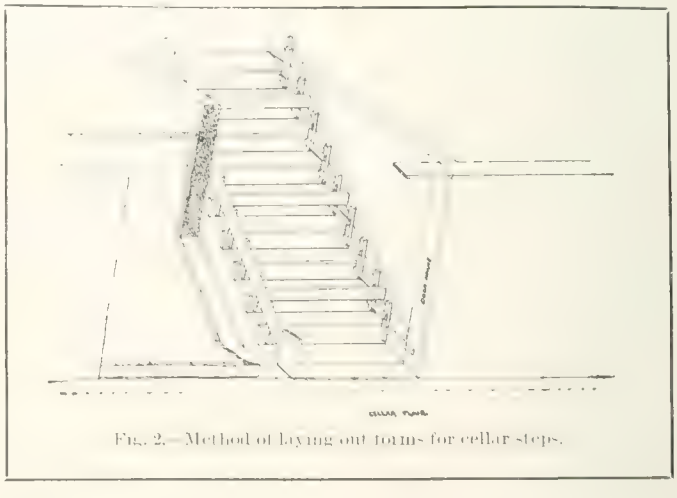


Fig. 2.—Method of laying out forms for cellar steps.

corner coming to the point located on the line "R." "W."

In addition to wedging, which should be sufficient to keep the cross pieces in a true horizontal position, bracing, as shown in Fig. 2 is desirable to keep them from being pushed out when the concrete is placed. It will be noted that the upper ends of the vertical pieces supporting the cross-forms are nailed to pieces which are held tightly against the walls by braces between them. This frame should be built in place, as better results will be obtained than if placed after building.

Prize Concrete House

Designed by William C. Lurkey, 144 Winslow Ave., Buffalo, N.Y.

Outer walls and porch posts to be of monolithic concrete construction. Cellar and porch floors to be concrete. Porch floor to be marked off into 8-in. squares as shown on plan. Outer concrete walls to be 6 inches thick, reinforced with rods 18 inches apart, furred on inside with wood furring strips and plastered. Cellar under kitchen, dining and living rooms. Walls to be 12 inches thick.

All first floor partitions 3 inches thick of concrete, and plastered.

Floor joists 2 in. x 10 in., 16 in. o.c.

All inside partitions on second floor to be 2 in. x 4 in., studs 20 in. o.c. lathed and plastered.

Floors to be oak in living and dining rooms; balance hard pine.

All inside trim cypress stained an oak color.

Window frames built into walls with a 2 in. reveal on outside and flush on inside; all exterior trim to be cypress stained golden brown color, sash of white pine painted. Chimney to be lined with flue tile built into concrete. Soil and vent pipes built into walls.

Roof shingled with red asbestos cement shingles.

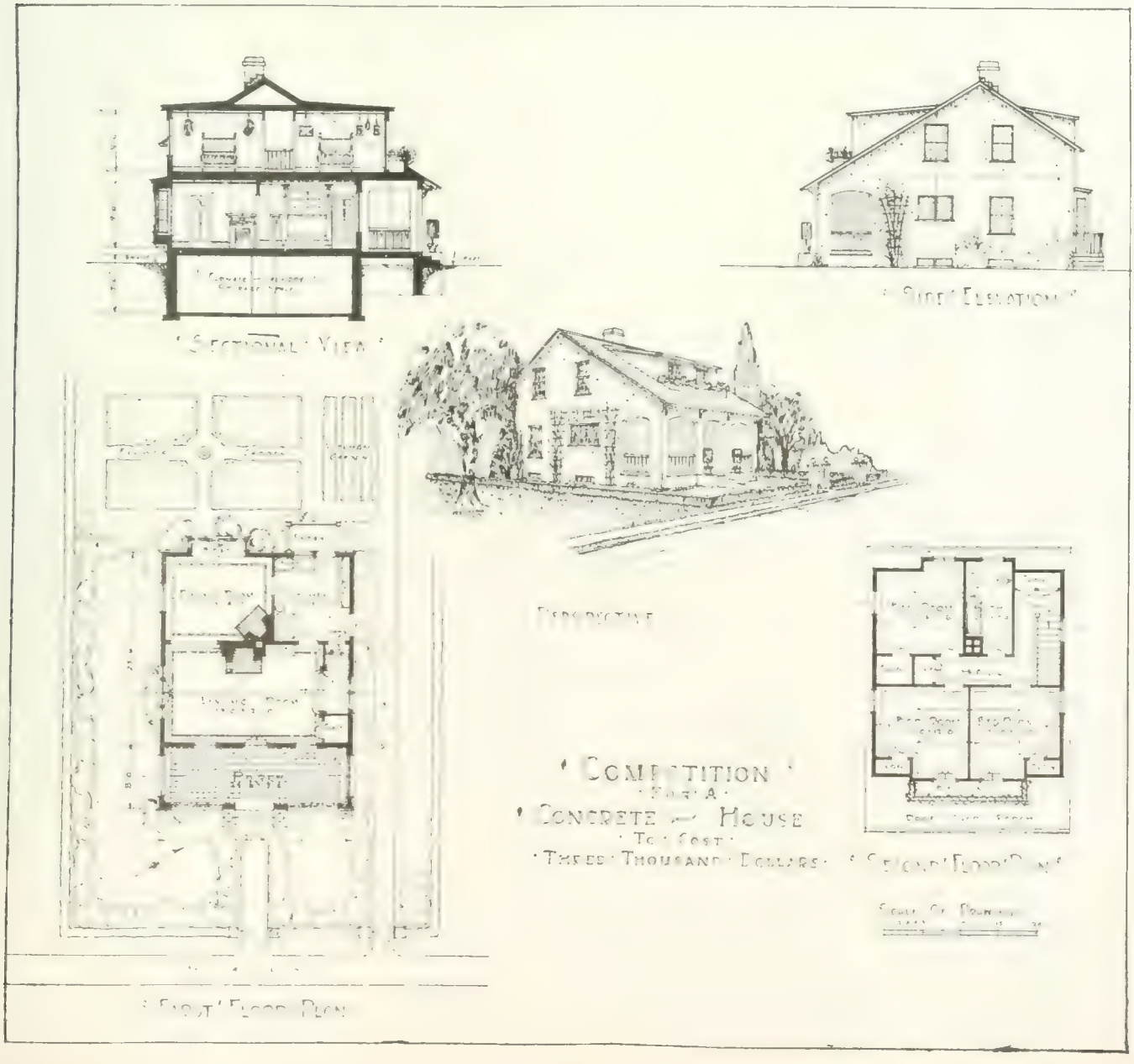
Living room and dining room to be rough floated plaster tinted; balance of rooms hard plaster, white finish; all doors, sash and trim to be of stock pattern.

Hot air furnace and laundry tubs in cellar.

Could be built for $3,000.—This plan won second prize in a contest by the Blaw Steel Construction Co., Pittsburg.

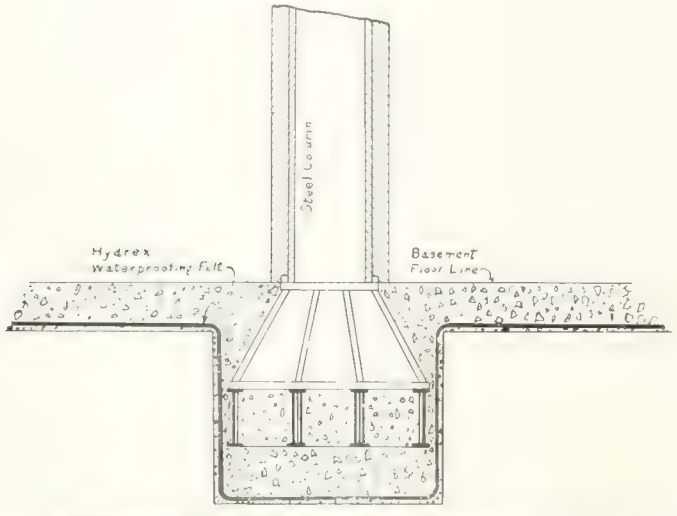
Insulating vs. Water and Electrolysis

Embedding steel in concrete may or may not endanger the steel, depending upon whether or not moisture reaches the steel. Concrete is not an insulator or a protection against electrolysis. The evidence and result of tests furnished should at once settle the use of coatings, washes, and concrete mixtures to protect concrete against moisture and the steel embedded therein against electrolysis, another word for corrosion. Exposed steel is always open to minute inspection. What action embedded steel is permitted to take in contact with



moisture is undergoing we do not know because we cannot see. We do know that if it is not perfectly dry it certainly is not improving. The solution lies in the perfect insulation—away from all moisture and electrolysis—of steel, of concrete under certain conditions, and of all building foundations.

In the case of the Singer Building, New York, owing to the great depth to which the foundations were carried, special care was required in insulation. To protect the base of the steel columns they were filled up



Insulating steel imbedded in concrete against water and electrolysis.

to the level with the top of the shoe plates with "Hydrex" compound which was made of such a consistency that it will remain permanently elastic and tight to the steel so that air and moisture will be excluded. All the exterior walls and entire sub-basement floor including foundations of engines, dynamos, floors under safe deposit vaults, elevator pits, sidewalks, etc., are waterproofed with several layers of felt cemented together with a hot compound in accordance with the "membrane method."

The method used in the Singer Building has also been used in insulating the columns and foundations of other large New York buildings. It is of the greatest importance that the materials designed for the purpose of waterproofing possess certain essential properties. The requirement of the felt are that it must be tough and durable, and at the same time soft and pliable. The cementing material must be of such a nature that it will absolutely repel water and moisture and be unaffected by it.

Expansion Joints for Concrete

In concrete work of any magnitude, provision must be made for the expansion and contraction due to the change of temperature. Experience points to the necessity of providing for change of length, and in a general way such joints should be from fifteen to thirty feet apart.

There are several ways in which this may be accomplished, depending somewhat upon the nature of the structure. For sidewalks it is the usual practice to make a joint at each transverse division. However, such a joint may not be strictly an expansion joint, simply place of minimum strength by making the division deep into the base course.

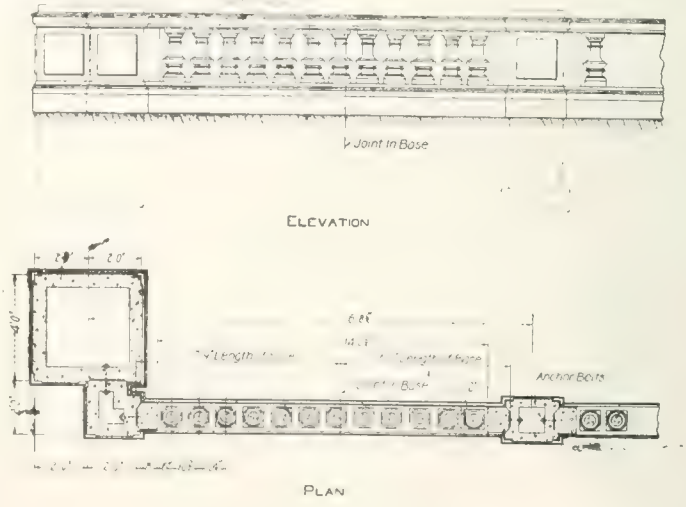
A practical way of providing expansion joints for curbing is to insert into the wall at short intervals ten to twenty feet apart, a piece of tarred paper, tamping the soft concrete in each side forming the wall, the finish coat hiding the joint. A vertical crack will appear at such place. The amount of opening of the joint will, of course, depend upon the change of temperature.

For a water tight structure with reinforced steel the following scheme may be effective: Continue the steel or netting through the joint. When laying the concrete, a wooden strip, bevelled at one edge, is placed on edge and pushed well into the soft mass. These strips should be in short sections, three to five feet long, and about five inches wide, tapering from a thickness of one-half inch on one side to one-fourth inch on the other. These strips should have planed surfaces before, and be greased with axle grease before using. Soap or tallow may be used instead of the grease.

When the concrete has taken its initial set, or, in other words, when it has started to harden, these wooden strips are taken out, leaving a thin, narrow notch. After the concrete has become well set fill these crevices with hot asphaltum.

Concrete Balustrade for Sunken Garden at Washington Park, Chicago

The concrete balustrade shown by the accompanying drawings borders a garden at Washington Park, Chicago, Ill. All dimensions and each of the "parts" comprising the balustrade are shown by the drawings. As will be apparent, it is built up of separately molded parts, base pieces, railing pieces and spindles. The molding was done by the regular shop force employed by the South Park Commission, which operates an ornamental concrete molding plant to supply its various park works. The pieces were hauled from the molding plant to the work by team and erected into the structure. All work was done by force account. Altogether, 894 feet of balustrade were built at the gar-



Concrete balustrade for a garden.

den at a cost in place, it is stated, of $7.42 per lineal foot or $1.25 per cubic foot of concrete. The finish of the concrete is the rough and rustic finish standard for the Park Commission's concrete structures.—Engineering and Contracting.

During 1912, Canada's imports of rought and dressed lumber from the United States through the port of Windsor alone totalled $1,317,488.

Part of the row of 24 houses, all on the same floor plan, but with different front elevations, giving an attractive appearance to the street.

A Style of House that has Proved a Popular Seller

Architect — *J. Hunt Stanford, Toronto*
Builder — *R. C. Bustard, Toronto*

Editorial Correspondence

THE north side of St. Ann's Road, from Dovercourt Road to Rusholme Road, Toronto, is taken up with 12 pair of houses erected by R. C. Bustard, Toronto. They are on 20 ft. lots and each house is 16 ft. 6 in. by 48 ft. 6 in. The houses are semi-detached and are all built on the same floor plan, the only difference being that three different elevations have been used. The first pair, starting at Dovercourt Road, have the elevation as shown in Fig. 1 on the plan, the second pair as shown in plan marked "Elevation 2," and the third as shown in Fig. 3. The fourth pair are the same as the first, the fifth the same as the second, the sixth the same as the third, and so on.

Different Style Windows.

As will be seen from the plan, some have bay windows in the parlor downstairs, while others have them in the living room upstairs. Some of the pairs have a small window to the right of the bay window upstairs, while others are without this feature. Then, too, the gable windows are different on each pair.

Different colored brick has been used, some of the houses being built of a red, some of a buff, and others of a medium shade brick. This, together with the difference in style in the windows, gives the whole block a handsome appearance and gets away from that "sameness" so prevalent where a row of dwellings has been put up by one builder. Then, too, some of the houses have been painted in a light shade of cream, while some are finished in a darker paint. Others have been done in white.

Spacious verandahs have been erected on each house. On one pair the verandah runs across the front of the house, while on the other two, individual verandahs have been built. The columns on these are of different design to suit the different elevations.

The Interior.

As stated above, the houses were all built from the same floor plan. The inside finish is the same in each. The description of the interior of one house may, therefore, be taken as applying to the twelve pair.

The interior trim is done almost throughout in hardwood, grained oak, the only part finished otherwise being the parlor, which is done in white. This room contains a gas fireplace, which permits of the installation of either a gas log or firebrick. The mantel is finished in mahogany finish. The gas fireplace upstairs in the front room is finished in golden oak and consists of an asbestos fire sheet.

A right angle hall, 2 ft. 6 in., runs from the front door past the dining room to the kitchen. At the back of the hall, near the entrance to the dining room, is a roomy cloak closet.

A Commodious Kitchen

The kitchen is large and particularly bright. In

Fig. 2.—Gas fire-place of simple design used in the houses built by Mr. Bustard.

fact the size of the rooms is a feature of the house. They are much larger and more commodious than in the average eight-room house being put up to-day. The verandahs are different sizes. On elevation 2 they are 10 ft. x 8 in.; on elevator 1, 13 ft. 6 in. x 8 ft., and on the pair that run across, they occupy 33 ft. x 8 ft. The parlor is 11 ft. 6 in. x 12 ft.; dining room, 13 ft. x 11 ft.; kitchen, 12 ft. 6 in. x 14 ft. 6 in.; sitting room upstairs, 13 ft. x 12 ft.; middle bedroom, 12 ft. x 11 ft. 6 in.; back bedroom, 9 ft. 6 in. x 11 ft.; bathroom, 6 ft. 6 in. x 6 ft.; one attic room is 15 ft. 6 in. x 12 ft., and the other 15 ft. 6 in. x 12ft. 6 in.; back balcony, 7 ft. 6 in. x 6 ft.

Instead of having a large pantry, there are two closets, one underneath the back stairs and another over the side entrance to the basement. One of these may be used for kitchen utensils and one for foodstuffs. The one over the basement entrance has a window facing the outside door, thus giving plenty of light in the room.

Besides the rear entrance to the kitchen, there is also one from the side and this latter does for an entrance to the cellar. This is a big improvement over having the cellar entrance at the rear, for it saves many steps to the housewife.

The Cellar.

The basement has a solid cement floor, and "Monarch" stationary laundry tubs, manufactured by the Toronto Cast Stone Works, Toronto, have been installed. The front part of the basement contains a "King" has been partitioned off for the storing of fruit and other food. It is well lighted and ventilated ensuring plenty of clean, dry air.

The upstairs contains a living room, two bedrooms and the bathroom, each bedroom having a roomy clothes closet. The rear bedroom opens up on a balcony.

The bathroom set is of the newest design and was supplied by the Amherst Foundry Co., Amherst, N.S. There is the usual medicine cabinet, and the finish being in white, the room presents a neat appearance.

Like the ground floor, all the floors on this flat are of hardwood.

The Attic.

Coming up to the attic, one strikes two large, bright rooms, each one of which contains a roomy clothes closet. Both have casement windows.

More Houses of the Same Plan.

Besides this 12 pair, Mr. Bustard has already erected about the same number in Moore Park, Toronto, and in the early part of March took out a permit to erect 21 additional pair on Glenn Ave., Moore Park. All are built on the same plan as is here described, and the value of such a method can be readily seen. Materials can be cut up in large lots and the cost thus materially lessened.

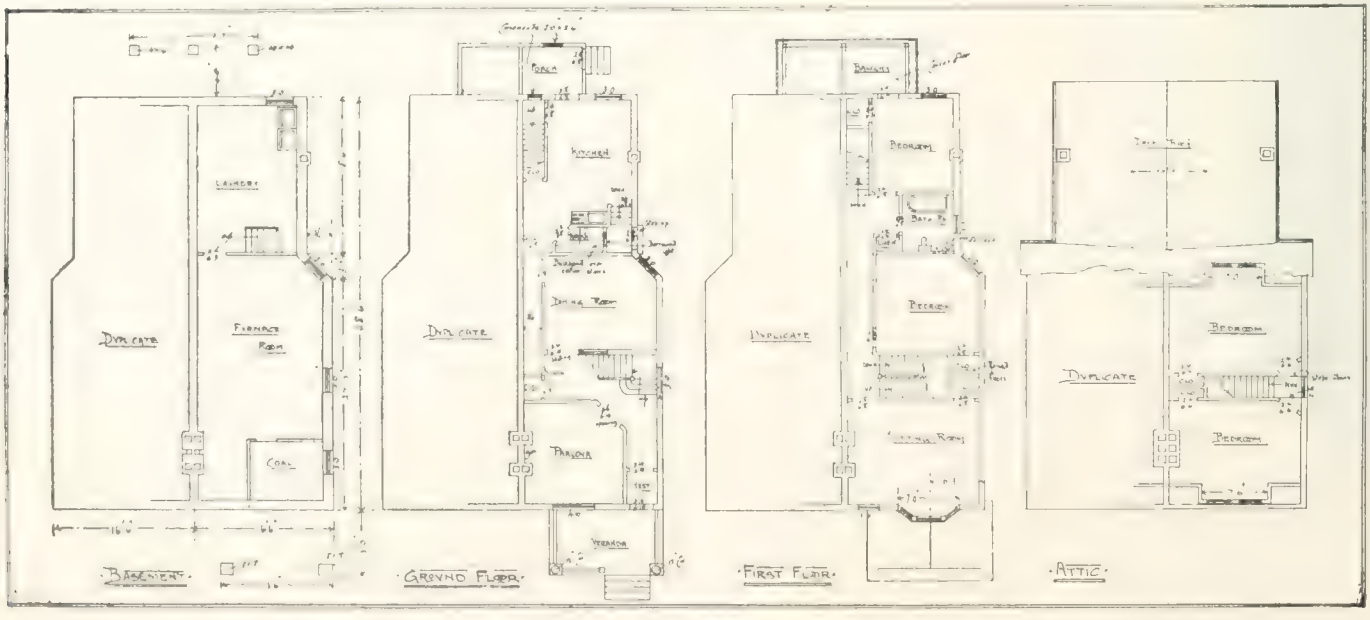
English Builders Have Questions to Solve

How to make workingmen and their families live in their living-rooms and not in the kitchen is the problem of builders and architects who are planning workingmen's cottages for English cities. The complication is something like that of the bathtubs in the model tenements erected in New York.

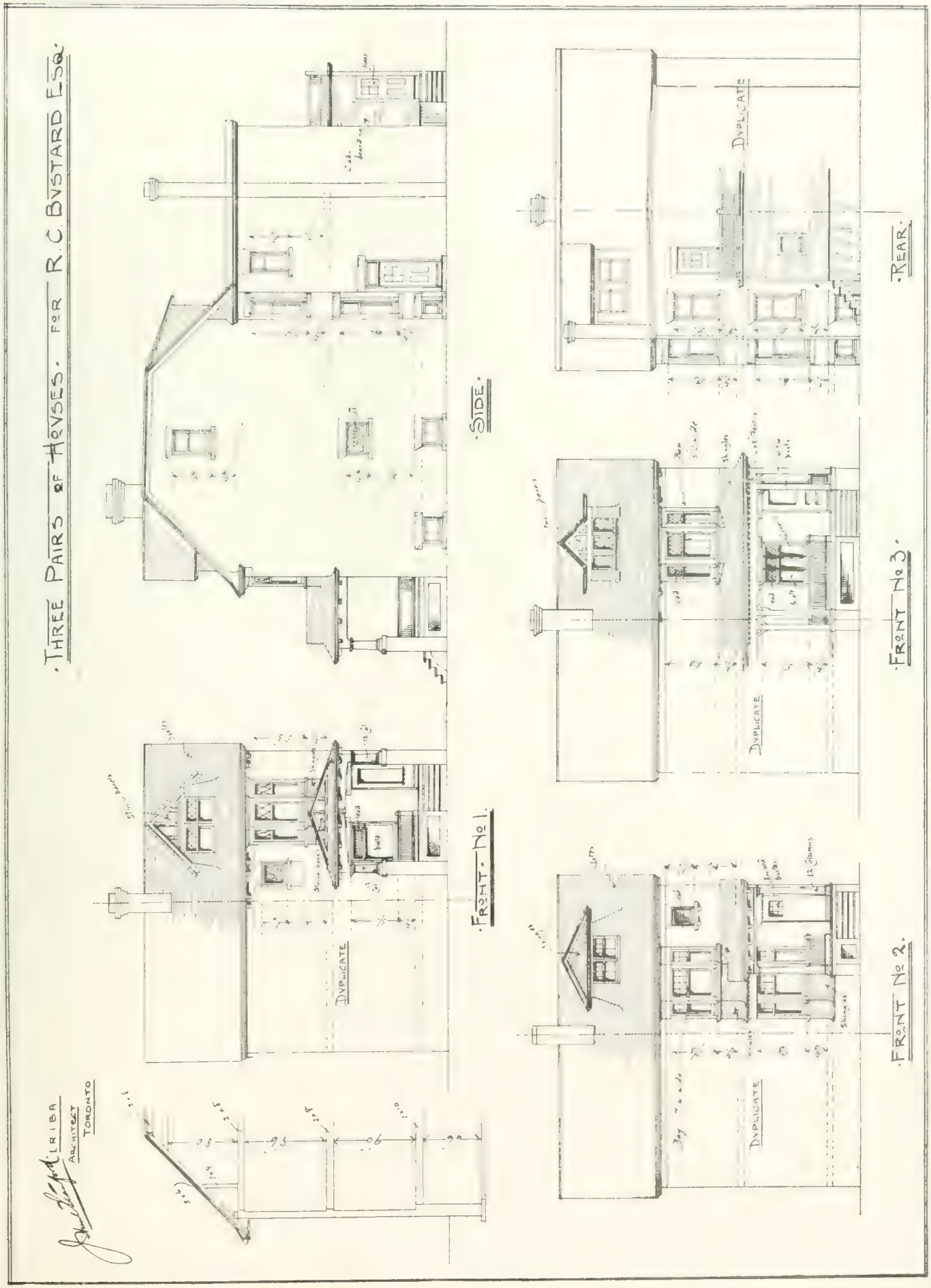
Most of the cottages being built under the English municipal housing schemes have two or three bedrooms, a living-room, and a kitchen, for principal rooms. The city of Shrewsbury, for instance, has just adopted plans for sixty-three cottages, with a living-room in each, a kitchen-scullery-bathroom, a larder, a toilet room, and two or three bedrooms upstairs, to rent at ninety cents or one dollar and ten cents a week, according as to whether they have two or three bedrooms.

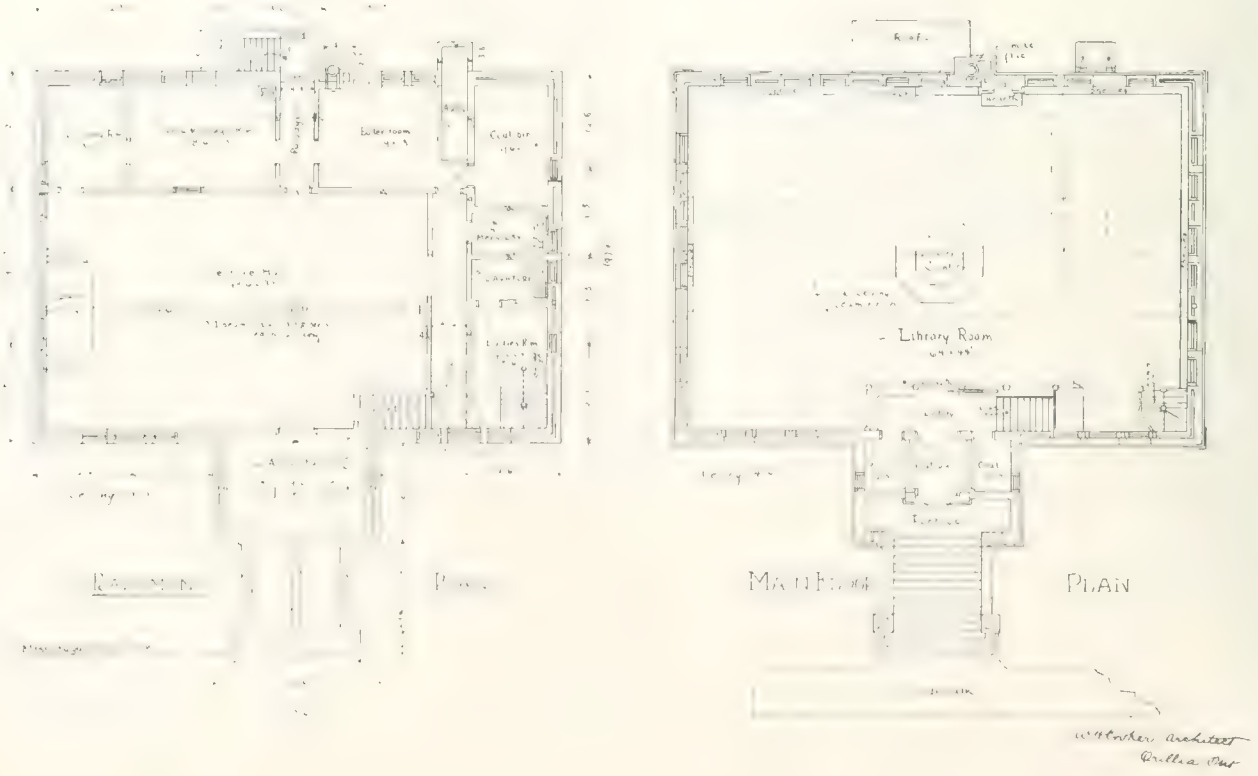
Experience has shown that the families will fill the living-room with knickknacks—as were the old New England parlors—and use the kitchen for the living-room. So in this Shrewsbury plan the kitchen has been given a different character in order to force the use of the living-room. The workingmen demand the living-room as a matter of pride. Without such a room in which to receive the minister and other guests, they feel the real sting of poverty.

One experienced social worker, Miss Margaret Tabor, suggests a new way of solving the puzzle. She would provide a very small entrance hall parlor, in which all the knickknacks could be placed and visitors received; a large living-room kitchen; and a small scullery, far enough away from the kitchen fire to make it unpopular as a living-room.



Floor plan of R. C. Bustard's houses.


THREE PAIRS OF HOUSES. FOR R.C. BUSTARD ESQ.
SIDE.
FRONT. No 1.
DUPLICATE
REAR.
DUPLICATE
FRONT No 3.
DUPLICATE
FRONT No 2.
DUPLICATE
JOHN M. LRIBA
ARCHITECT
TORONTO



Elevation and Plan of the Orillia Public Library

Courtesy Ontario Dept of Education.

The Canadian Builder
and Carpenter

A Practical Paper Devoted to all Branches of the Building Trades

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Vol. 3 TORONTO, APRIL, 1913 No. 4

Editorial Comment

In the March issue of The Canadian Builder, we referred to the decision of the Toronto City Council to limit the heights of buildings to 250 feet. Permits for skyscrapers were then issued to the Dominion and Royal Banks. Now the pendulum has swung back and the height is set at 130 feet, which was the former limit.

* * *

On the editorial page, last issue, we commented on the question of speculations keeping back building operations. A tax on land only or taxing houses at a lower rate than land, would induce the owner to put it to good use by erecting houses on it and thus assist in furnishing houses in sufficient numbers to house the rapidly growing population.

* * *

In a recent issue The Ottawa Free Press refers to the growth of popularity of the apartment house in Ottawa and the need for more of this class of dwelling place. Evidently the capital city welcomes this class of building.

* * *

In this issue of The Canadian Builder are a number of articles dealing with cement and concrete construction, either poured concrete, or as bricks or blocks. It will be noted by a reference to these articles, the wide uses for which concrete in its several forms, is used—houses, stores, churches, schools, verandah posts, lamp posts, etc. The photographs shown are sufficient proof that concrete blocks may be used in the production of artistic buildings.

* * *

Every carpenter should learn to take measurements quickly and accurately. It is the custom to carry a two-foot rule, but has it ever occured to you to use a five or six-foot rule? Recently the writer watched some electrical men measuring for wiring. Later a carpenter was measuring the same distances with a two foot rule. The width of the building was about twenty feet, and the length about sixty feet, so that it meant that the carpenter had to measure many more rule lengths to get the exact measurements. It occured to me that if a carpenter carried a five-foot rule in his apron pocket for measuring long distances, he would save considerable time. It is such little things as this that put you in line for advancement, and assist carpenters who are taking contracts to do more in the course of a day.

* * *

In the piling of lumber, builders would eliminate a big source of loss of they would observe a few simple rules. Often, I have seen lumber piled on the ground and left there for several months. There was no attempt to permit a circulation of air and the result was that grass and weeds grew up around the lower boards and they were rotted. Strips should be used between the layers of boards, and, if this is done, will result in a considerable saving in lumber.

* * *

The thinnest building will be built for Henry W. Hayden, a lawyer, of No. 16 Exchange Place, on a strip of land belonging to his father's estate. It reached its present emaciated dimensions through the change made more than forty years ago in the property lines on Worth street. Shortly after that a one-storey frame and corrugated iron building was erected on the property. It is now occupied by a cigar stand and a boot-black.

The new building will be made of iron and glass. Except the bricks in the foundations and the concrete in the floors, there will not be anything else to it but iron and glass. It is planned so that none of its limited space shall be sacrificed to walls

Read Your Technical Paper

There are a large number of men in this Dominion, who, when they are approached by a subscription solicitor for a book or magazine which will help them to succeed in their work, make the statement that they do not have time to read any literature of that nature—that they don't even get a chance to see the daily paper. The man who says he never sees the daily either lives where no daily is published or uses the argument merely to put off the solicitor. Admittedly, there are at times evenings when a man does not get a chance to go over the paper, but there are few men who do not go over either a morning or evening newspaper at least four nights a week.

Other men state they don't get time to read at the office and acknowledge that when they get home, they are so tired they prefer to glance over the evening newspaper and go to bed.

Reading the newspaper is a good habit and educational, so far as current news goes, but while it keeps a man posted on general doings all over the world, does it give him any information regarding his own little world—the business at which he works all days? Not very often. A technical or trade paper does. And is it not worth more to find in a technical paper an item that will reduce operating costs and increase efficiency, than it is to read about what the militant suffragettes are doing in England?

Most technical papers come but once a month and the man is foolish who thinks he is so busy that he must throw his paper in the waste basket without removing the cover. Even if he cannot spare the time on the day the paper reaches him, it will pay him to lay it aside for another time. He will find in his technical paper ideas which will save for him or make for him many times the price of his subscription and it will pay him in dollars and cents to be a regular reader.

News of Builders' Exchanges

J. P. Anglin Addresses Montreal Exchange.

Mr. J. P. Anglin, of Anglins, Limited, addressed the members of the Montreal Builders' Exchange at one of their recent noonday luncheons. During his talk on costs and estimating, he brought out many good points and stated that a man starting in the contracting business should take the following things into consideration: Obtain a contract on a definite basis; execute the work called for; record the cost of the work; determine the special charges; the net profits; and is the profit sufficient considering the chances taken? He denounced the contractor who took a job by the short cut method known as cubing. A man who does business in this way requires three times as much work in order to make the same profit as the careful bidder, and, by his methods, brings down prices to the narrowest margin. However, the number of contractors who do business in this way is fast being reduced and the business is being put on a scientific basis.

Speaking of the unit cost of labor, Mr. Anglin stated that it was essential that an accurate cost of work in progress should be kept and checked with the pay roll. He stated that his firm had employed a check system with great success. Each man had a number by means of which it was known on which class of work he was engaged, and as every man kept his particular number it facilitated the pay roll. Two daily rounds were made on each job, and the daily time reports were sent to the head office. These reports were entered into the cost book and the pay roll, so that the firm were able to know the daily cost of each sub-division of each job.

Annual Social Evening of Toronto Builders' Exchange

On March 26, the members of the builders' exchange of the city of Toronto, held a social evening in the St. Charles Hotel, at which some 200 builders, architects and supply men listened to an excellent program by Toronto's best talent. Fred. Armstrong acted as chairman. The evening was entirely a social one—one of those where fellows get together, shake hands and become acquainted—and no business was transacted. However, impromptu speeches were delivered by several of those present, who referred to the progress the building industry was making and outlined the plans for the future. Among those heard from were Messrs. Bulley, Gander, John M. Lyall, Belfry, of the Board of Education; Miller, president of the Canadian Clay Workers' Association; and President Gould and Secretary Hughes of the Master Painters' Asociation.

Several members of the Hamilton exchange came down for the evening.

E. M. Trowern Addresses Montreal Builders' Exchange.

E. M. Trowern, general secretary of the Retail Merchants' Association of Canada, and secretary of the Ontario Branch, addressed the members of the Montreal Builders' Exchange at one of their recent noonday luncheons. He spoke of the benefits to be derived from organization and pointed out that it was essential that builders and the builders' supply houses get together for the benefit of the trade. Mr. Trowern pointed out that the object of the builders' supply section of the Retail Merchants' Association could be fairly summed up in the following questions to supply houses: Are you in favor of co-operation with your fellow dealers throughout Canada, having in view the improvement of our trade conditions and the determining of a fair and reasonable selling price for supplies? Are you in favor of endeavoring to have the legitimate dealer, who has an established place of business and who has his capital invested therein, and who pays taxes in the municipality, protected against agents who have no established place of business, who pay no taxes, and who carry no stock, but who take orders and sell direct to our customers Are you in favor of framers or others forming buying syndicates and buying direct from manufacturers and purchasing their supplies at the same price as the legitimate dealer who carries a stock? Are you in favor of giving manufacturers a fair profit and doing all you can to sell their goods providing they deal fairly and equitably with all those engaged in the legitimate trade? Are you in favor of having a standing committee of Builders' Supplies Dealers chosen from the dealers throughout the Dominion to wait upon and interview manufacturers with a view of taking up our various grievances that arise from time to time? Will you unite with us in membership so that we can carry them out and place our business upon a higher plane?

Hamilton Exchange News.

At a recent meeting of the directors of the Hamilton Builders' Exchange it was decided to move into new offices in Chancery Chambers, on Main Street East. The membership has grown so rapidly that the present quarters are inadequate.

The annual banquet was held in the Royal Hotel, on March 28.

Chas. Hannaford has been elected to the board of directors.

Officers of Regina Exchange.

At the recent meeting of the Regina Builders' Exchange, J. M. Taylor, of the North-Western Electric Co., was elected president; vice-president, D. Smith; secretary, Wm. Whiteford; executive committee, H. Potts, George Minkley, A. Young and W. A. Wilson.

Ottawa Exchange Elects Officers.

The officers elected by the Ottawa Builders' Exchange for 1913 are: President, Alexander Christie; vice-president, John Sutherland; 2nd vice-president, James Ritchie; secretary, J. S. C. Adamson, 126 Sparks Street, Ottawa; treasurer, A. Boehmer.

The books showed the association to be in a flourishing condition, and an excellent season is looked forward to.

Wettlaufer Calendar for 1913

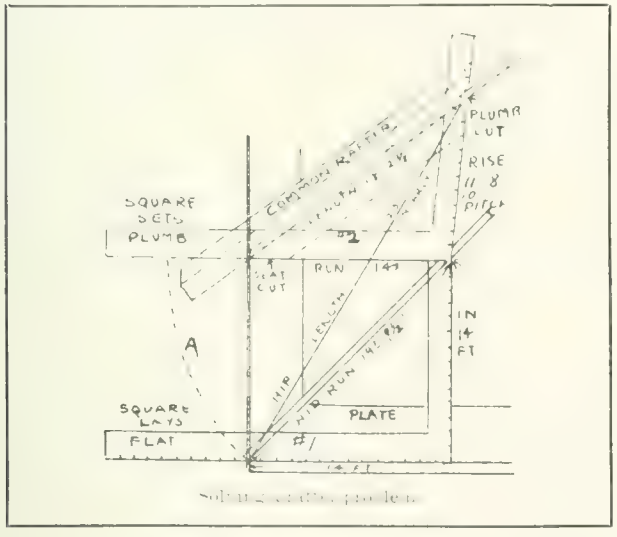
Wettlaufer Bros., 178 Spadina Ave., Toronto, have issued a calendar for the year beginning with March 1913. The hanger is 20 by 36 inches and the figures are large and may be read from a considerable distance. Above the calendar proper are illustrations of Wettlaufer concrete machinery including mechanical "heart shaped" mixers, hand mixers, hoist with single drum run by gasoline engine, double drum steam hoist, diaphram, pump, rock crusher and tile machine. Readers of The Canadian Builder may obtain one of these calendars by writing Wettfaufer Bros., Toronto.

Carpentry and Woodworking

Solving a Rafter Problem

By A. A. Stafford

I have noticed many books in which some brother "chip" has submitted drawings and explanations of rafter work. They are all very good, but some are too complicated for the ordinary carpenter to understand readily. Then, too, one man will look at a drawing with a different view than another, so it is well



to have a choice, and I think the figure here submitted will give the reader a very clear idea of getting the length and cuts of rafters.

To start with, the run and rise must be known. They all look alike—for instance, common rafter, on square No. 2: Run 14 in., rise 11 ft. 8 in. (10 in. pitch). Lay the rule as shown, 14 in. to 11 8-12 in., reads on rule 18 7-32 in., or 18 ft., 2⅝ in. length. See that you do not multiply any hypothenuse figures and make a mistake. If you look at the reading right, you have the lengths all in a nutshell. Run and rise, always cut, seat and plumb, i. e., 14 in. by 11 8-12 in. (or 12 in. by 10 in. pitch).

Now, then, hips and valleys are the same procedure, only we must have a new run. Note how rule and square No. 1 lays. Edge of rule, from corner of plate, on diagonal line to base of plumb cut line, is run, and reads on rule 19 ft. 9½ in. by 11 ft. 8 in. rise, the same as common rafter. Now, if we swing square No. 2 on dotted line A to the corner of plate, and apply rule on rise and run as hip length, you will find the reading on rule nearly 23 in. equal 23 feet and close enough to cut this length.

Cuts—cuts—let's see. So many men try to use common rafter cuts on hips. Cut every rafter by its own rise and run. Take this hip, 19¾ in. by 11 8-12 in., will cut plumb and seat; or 10 in. pitch by 17 in., as 17 in. is (nearly) diagonally equal 12 in. run on right angle—or 5 in. must be added to every common foot for diagonal run.

Side cuts, length by run. These figures never have to be exact. Keep away from fractions. Example: This hip we could take 23 in. for side cut as one figure, and 19¾ in. (our run) for the other, as they are both nearly correct. But here is another way: Apply rule across corner of square 10 in. (rise) by 17 in (run)—reads on rule nearly 19¾ in. Now, I would take 20 in. length, 17 in. run, or any equivalent for convenience. So you see it's all done by working your head a little, and the two notorious tools, rule and square. Don't forget to use the one on the other. Study Fig. 1 and imagine square No. 2 sets plumb. Then I think the problem is plain.—The Carpenter.

A Short Cut in Mitering

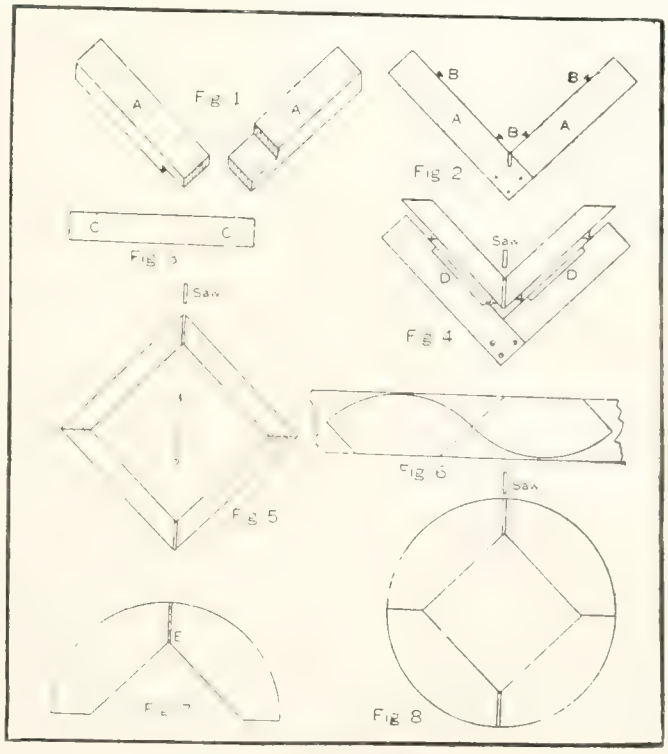
By Charles M. Allen

As a substitute for the miter saw the following device may be of service to one who has only a few pieces to miter.

Make a frame of two pieces of hardwood 14 inches long, 3 inches wide and 1¾ inches thick and cut with a shoulder on each piece as shown at A, Fig. 1. Fasten these together with three screws so they will make a square as in Fig. 2.

On the inside edge of pieces at A place four screws as shown by B, Fig. 2, and let the heads project ¼ inch. These are to be used as adjustment screws so that the pieces to be mitered can be cut square.

Take the pieces to be mitered and lay out one with



A short cut in mitering.

miter square as at C, Fig. 3, to be used for a pattern. Cut the miters roughly on band-saw, then place the two pieces A form as at Fig. 4. Pass form and pieces through band-saw. Close pieces together and pass through again if necessary.

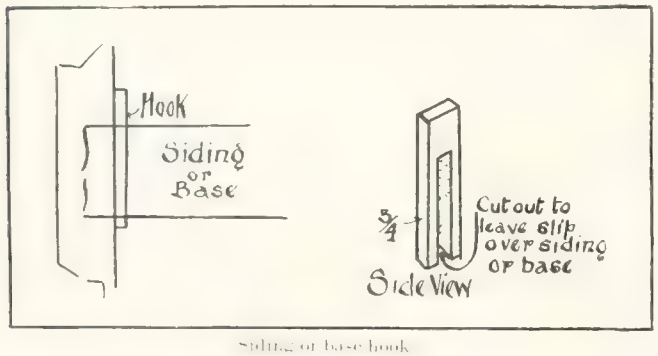
After mitering all pieces in this way and securing together with corrugated fasteners or nails, you place two halves together as in Fig. 5. Pass through band-saw till joint is made. Of course if you have a power driven miter-saw this plan is too slow. This same scheme can be used in getting out segments for circles to be turned for patterns or caps and bases for columns. Dress the material on two sides to the required thickness and mark out by a pattern, Fig. 6. Band-saw the segments and place two of them together and pass joint through band-saw and nail with corrugated fasteners as shown at E, Fig. 7, one on face and two on back. After all are jointed and nailed up in halves place two halves together and pass joint through band-saw as in Fig. 8. After nailing they are ready for turning.

Have band-sawed and jointed up circles to six, eight and ten segments 54 inches diameter and 6 inches thick in this manner.—Wood Craft.

Siding or Base Hook

By George W. Carter

The hook shown in the accompanying illustrations, is of great value in the saving of labor and in the convenience to the carpenter. It is superior to the old time hooks in common use. The slot that goes over



Siding or base hook.

the material is useful, also, to slip over the top of a carpenter's apron. Then he always has it wherever he may be.

A Labor-Saving Device for Unloading Lumber

By C. M. B. in "Woodworker"

Occasionally we run across some simple little thing that makes us feel like kicking ourselves because we had not thought of it years ago. I stumbled on one of these little labor-savers the other day. I had some business with the superintendent of a neighboring plant, and found him out in the yard, where some men were unloading a box car of lumber.

The men had a contrivance attached to the opening in the car that was doing fully half of the heavy work. It was made of two pieces of wood, 2 x 4, and about 15 in. long; in the side of each piece was a 1½-in. hole. These two pieces were fastened with handscrews, one on each side of the opening in the car. A roller 2 in. in diameter, with the ends cut down to 1½ in. to fit in the holes in the side pieces, extended across the car opening. The end of each board was placed on this roller, and, instead of being handed, carried or lifted by the man inside the car to the man outside, it was pushed on the roller.

It is possible that this device may be used in hundreds of other places, but this was the first time I had seen it. As I have seen a good many cars unloaded, in a good many different places, I think it possible there are others who are not using it, and for their benefit I pass it on..

A. E. Ponsford, contractor, of St. Thomas, Ont., in announcing the formation of his business into a joint stock company, stated that he will inaugurate a plan for an annual distribution of dividend of his profits among his employees, based on their actual work and regardless of earnings. The first year $1,000 will be divided.

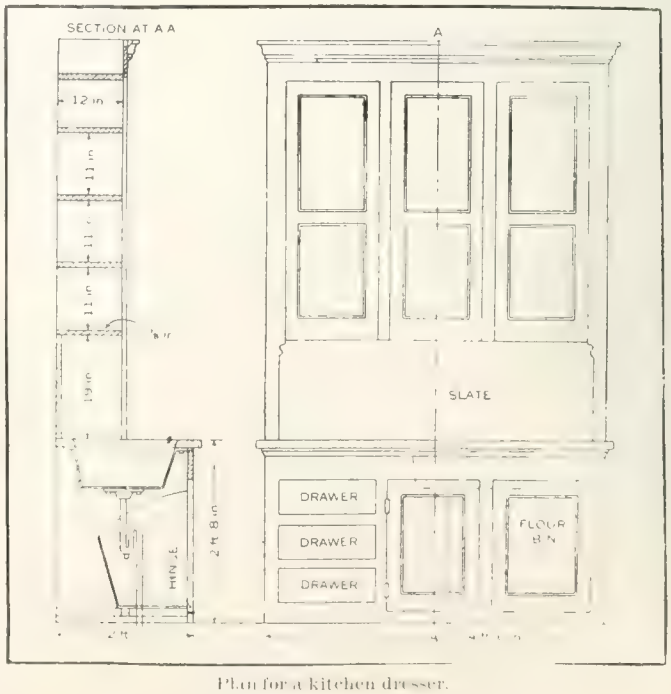
Plan for Kitchen Dresser

By John Wavrek, Jr.

One of the most necessary articles in the modern home is the kitchen dresser, or cabinet. To be of much service it should be not less than 4½ feet wide, and extend up to the ceiling. Sometimes, for use in double houses, the dressers are made right and left-hand. That is, the bowl on one side of the house will be on the right and on the other side on the left. I do not think it necessary, as a rule, to make this distinction. If the lower front on both sides of the dresser is sanded, it may be used either way.

The accompanying sketch shows a handy kitchen dresser which is made up in the planing mill. It will be noticed that there is an open space of 1 inch at the top of the upper front, next to the ceiling. This space is purposely left to allow of easier fitting to the ceiling in cases where the dresser goes up all the way. The crown mold, which is usually a 5-inch ogee, will cover any opening which is left after the dresses is placed.

The sides of the dresser are usually dadoed ½ inch deep to receive the shelves, which are about ⅞ inch



Plan for a kitchen dresser.

thick. However, in some cases, the people prefer movable shelves, and where this is desired the sides are provided with small holes of about 2-inch centres, which receive the metal shelf supports.

The dresser shown here is provided with a flour bin on one side, and it is a very handy adjunct. When this bin is closed it has the appearance of an ordinary door, the same as the one beside it. This bin is usually made up of ½-inch poplar, bass or any other wood which does not impart any taste to the article placed therein. By having the door hinged at the bottom it is simply drawn out at the top, which causes the bin to swing out, thereby giving easy access to the flour. A stop fastened to the side of the bin strikes the sides of the front when the bin is pulled out, and serves to keep it from falling out.

If the dresser is 6 feet wide or more, another bin may be added on the opposite side, which can be used for sugar or any other article. It is a good idea to raise the bottom shelf about 2½ inches from the floor, to allow space for the feet, so they do not strike against the lower front. It has been my experience that it is preferable to have the dresser with this open space at the bottom.—Woodworker.

To Fit Purlin Plates Against Hip Rafters

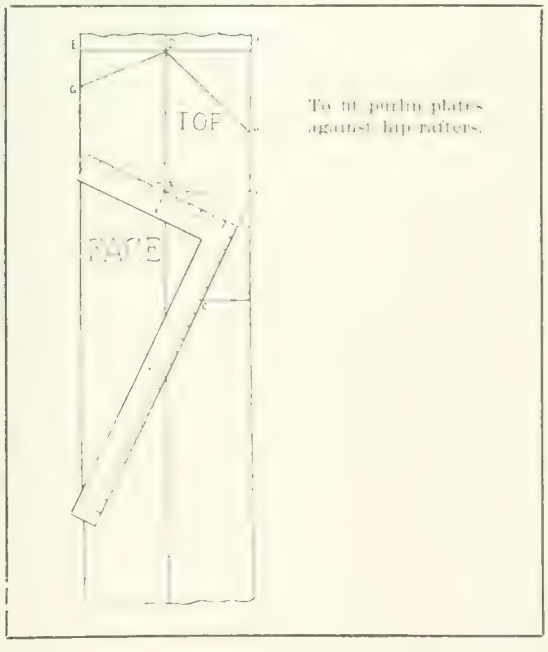
By James Barry

Place square on stick at 6 and 12. Lay off size of top of stick and face sides both ways from corner of square—B to A, 6 in. for top side, and B to C, 6 in. for face side, or exact size of rafter.

From these three points A B C square across from A to 1, B to 2, C to 3.

Now square end of stick to be mitered on face D E, or on top D F.

Next take distance from 1 to 2 and set off on bottom corner of face, from E to G, and mark G D, which required level for face of purlin plate against hip



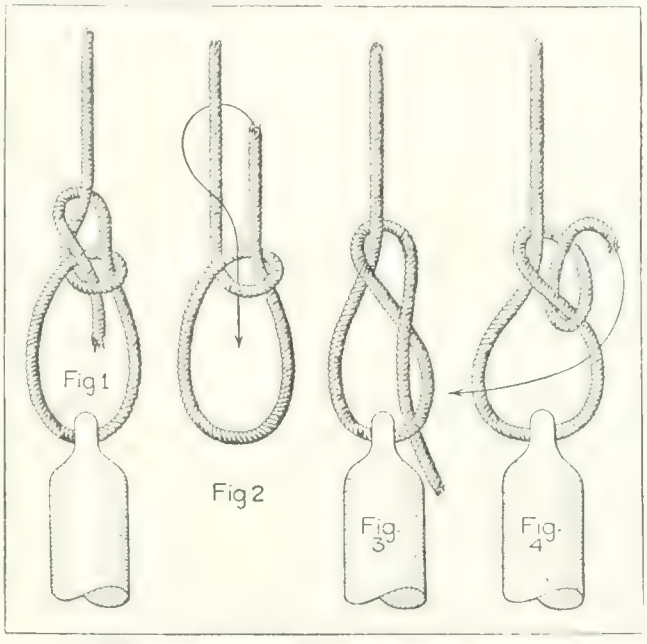
rafter. Take distance from 2 to 3 and set it off, on back corner of top from F to H and mark H D, which will give level for top side of purlin plate against hip rafter. Cut to marks G D H. Mark opposite side of stick, as shown at J G and J H.

The bevels will be the same on any size stick laid 6 in. pitch.

Sticks of any size and pitch may be laid out by this rule.—The Carpenter.

Knot for Sash Cord

From Edward H. Crussell.—Fig. 1 shows the justly celebrated bowline knot used for fastening cord to sash weights. This is probably the most lasting knot that can be used for the purpose, but not all men can



Knots suggested by Mr. Crussell for sash cord knots.

learn to tie it readily. Fig. 2 explains the method of tying it. I would mention that it usually requires some little practice to become perfect at it.

The knot shown in Fig. 3 is the most simple and easiest of all. It is our old friend the "timber hitch" in a new role. There is no danger of this knot becoming loose if a proper amount of end is left projecting.

In Fig. 4 is shown a running knot. The free end of the line is left a little long and is taken through between the knot and the weight, as shown by the arrow, after which the knot is slipped down tight. The writer has used all of these knots for sash cord at different times and does not recall an instance where the knot did not outlast the cord.—Building Age.

Absorption of Sound Waves in Buildings

The subject of the absorption of sound waves in buildings is very clearly explained by Edward W. DeKnight, of the Hydrex Felt & Engineering Co., New York City, in a recent paper. "The absorption of sound waves," stated Mr. DeKnight, "within a room can be most readily accomplished by the use of curtains, carpets, hangings, etc., but may not stop its conduction along the floor or along the ceiling to another apartment. In fact, the effect of sound transmission is due not so much to the penetration of sound, as it were, through a concrete floor or ceiling, for example, as to the sound being reinforced and conducted along the floor and ceiling or through a beam or column in contact with them. There must be interference with the sound waves.

"Hollow spaces between floors, and in hollow-tile or

other partitions should be interlined, broken up or so treated as to make the confined air non-resonant. Floors, joists and beams should be made non-conducting. The top flooring should be insulated from the under flooring, the under flooring from the joists, the joists from the beams, the beams from the columns (especially in wooden construction), the partition from the floor, and the ceiling laths from the under side of the poists—through the interposition, in each case, of a non-conducting layer of Hydrex Saniflor Sound-Deadening Felt.

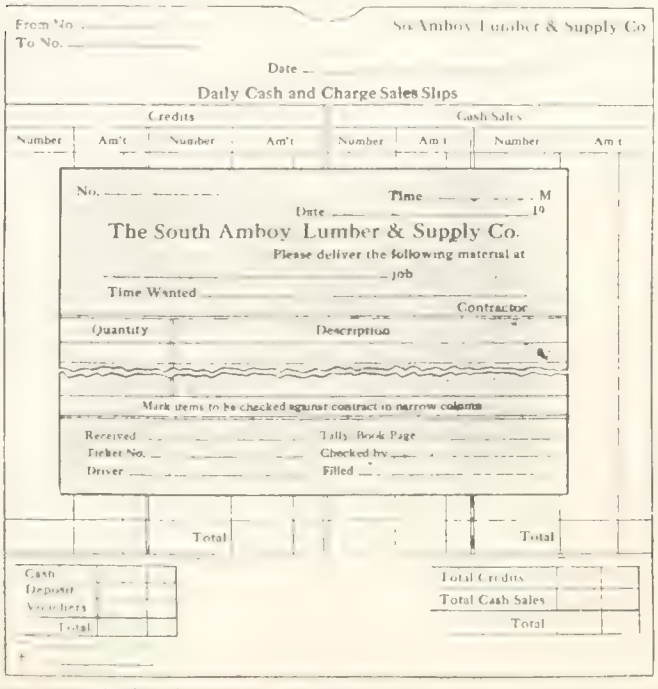
"It has been shown that the beautiful musical qualities of the violin depend upon the combined action of its various parts. Disconnect these parts, and, for the purpose, they would be useless. In combination they reinforce each other through the resonance of the materials and the resonance of the mass of confined air.

"Disconnect a floor, suspend it by ropes in the air, out of contact with any other thing, and then walk upon it, and the resulting sound is slight. Place the floor again in position—resting upon joists (with a resonant air space between the floor and the ceiling below) the joists resting upon beams, the beams on columns, the floor boards in contact with the ceiling, and the whole enclosing a mass of air like an organ pipe. Then walk upon the floor or ring a bell within the room, and the sound is greatly augmented. It is also reinforced by the resonant air in the space between the floor and the ceiling below and in the partitions, the vibrations are conducted through joists, beams, columns, rods, etc., and the sound so transmitted to other parts of the building.

"It is, therefore, the placing in combination or in contact dense sound carrying media (especially concrete and steel) which causes the transmission of sound."

Records for a Lumber Yard

One lumber dealer is able to prove positively to any customer that all material charged to his job was delivered. His system not only solves one of the difficult problems of the material man, but also lightens office burdens. Particularly well fitted for the small yard, the plan allows quick checking against a contract or order and lines up the yard men and drivers. It settles disputes over deliveries and allows quick settlements with builders who have completed a job and are entitled to refunds for materials, fittings or supplies ordered but not used on the building.



the counter. The contractors' order blanks are popular.

Occasional disputes with customers made the new way of handling orders necessary. Study of the problem showed that on big buildings foremen or clerks received material and checked up the dealer's sales slip. The difficulty lay in the small job where foreman or owner dropped hammer and saw to receive goods, or, when busy, deputized a workman for the job. As a consequence of slack methods, the duplicate delivery tickets frequently became lost, mislaid or were worn down to illegibility by association with nails, screws and carpenter's crayons in the pockets of the driver and the impromptu receiving clerk. When one was lost outright, the builders sometimes took the view that its absence from the file or hook was pretty good evidence that that particular load of stuff had never been delivered.

By the new plan, however, the assistance the material man receives from the big contractor is passed on and the dealer helps the small builder. The plan invented to gain this result can easily be applied with few, if any, alterations to any business of similar nature. The system consists of three parts: estimate forms, sales book sheets in triplicate and manila folders.

Estimate Forms.

The estimate blanks (Form III) are printed on white, yellow and pink paper. The white sheet is the original and shows all calculations. The pink sheet is the contractor's copy and the price column is perforated so that it can be detached in case a lump sum figure is given. The yellow sheet is the delivery record. When the contractor places the order, this sheet is put in the delivery binder. The original is filed in the contract binder after the amounts have been entered.

Either a triplicate autograph register or a triplicate sales book with sheets numbered serially is used for delivery tickets. The original ticket (Form IV) is signed by the person receiving the material and is returned by the driver, who adds his initials to identify the load in case of dispute. When the ticket is returned by the driver, it is filed in the daily folder (Form V). The face of the folder carries the numbers of all the tickets on all the pobs issued on that day. The bookkeeper writes in the number of tickets made out for material which has been delayed in delivery. When delivery is made and the missing tickets are ready for the files, the penciled memoranda are erased.

The contractor keeps the duplicate delivery ticket. The triplicate is kept under lock and key. Deliveries on contracts are checked up every day from the triplicate to the delivery record. The original delivery ticket is then filed in the ticket folder (Form VI). When items not included in the contract are shown on the ticket, the bookkeeper holds it until the "extras" it carries can be posted. The number of such a ticket is noted in pencil on the folder until the proper entries have been made, then the number is erased and the ticket is put in its proper place in the envelope.

Before the ticket is filed in the folder, it is numbered, beginning with one on each contract, and the corresponding number is placed beside the items on the contract to which the ticket applies. This counter-

check enables the office to investigate any disputed item, whether the date of delivery or the serial number of the ticket is known or not. By cross checking the yard man's tally book with the delivery ticket, the handling of any load can be traced from the pile to the job.

Recording Important Data.

The spaces on the ticket folder (Form VI) are for recording important data relative to the contract and enable the dealer to duplicate designs and grades on similar jobs. The folder also provides in compact form information on sub-contracts such as lighting, heating and plumbing. Such information is of great value when a would-be builder, interested in a new residence, asks for figures which will let him know whether or not he can build.

The cash sales system adopted has been found to be as effective as the system for the builders. In a manila folder (Form I), all the tickets of cash sales and cash received on account, together with all credit sales other than contract deliveries, are filed. Cash in the drawer at the close of business is entered on the folder and turned over to the bookkeeper or cashier. Tickets are then removed from the machine and the money received on account and the cash sales are listed on the folder to balance the cash in the drawer.

Frequently, after a contractor has received a material man's figures on a job and has started work the owner orders important changes in a building. The new plans, often demand alterations in the material bill. In this way misunderstandings arise and errors occur which are hard to correct, especially when delivery has been begun. To check mistakes the yard man uses the original estimate sheet to note the changes in material required, rebates due the contract or for stuff returned on account of owner's orders. The first duplicate estimate sheet is removed from the binder and a second duplicate is made out. This carries the revised order.

Permits Builders to Check Losses.

The contractor's order blanks (Form II) bound in books of duplicate sheets are in great demand by builders, who find in them an effective way of checking against losses due to carelessness in receiving, theft, or undue proportion of waste on a job. Under the old system, foremen, when they missed material, made a half-hearted search for it and then gave a verbal order to the driver who had it filled and hauled to the building. Theft of material and carelessness of workmen who cut up specially sawed material was covered up in the same way. The contractor, unless continually on the job had no way of checking orders, especially as delivery tickets could be easily destroyed. In case of dispute it was easy enough to insist that material charged for had never been delivered. The company, to hold its customers, frequently had to accept losses which, small in themselves, and therefore negligible from the driver's viewpoint, amounted to a considerable sum in the course of the year.

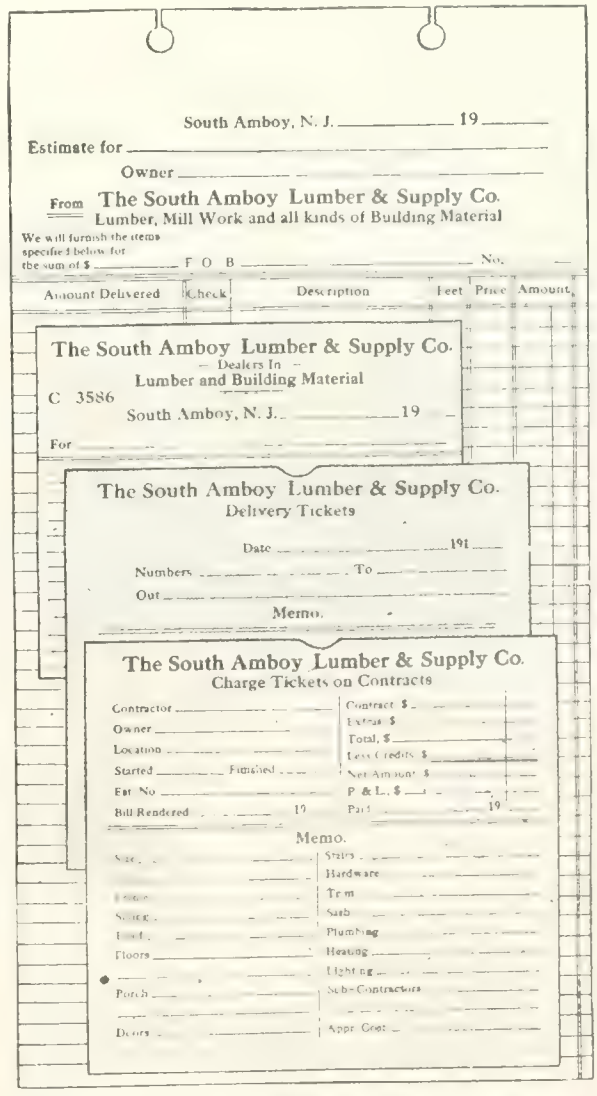
The problem has been satisfactorily solved by the duplicate order book. The material man agrees with the contractor that no verbal orders are to be given or accepted and that all requisitions must be signed for on the forms provided. Disputes are thereby avoided. The contractor has the duplicate sheets to check orders. By thumbing over the sheets occasionally he may note and check extravagant waste on the part of his men. The sheets in the book are numbered and an explanation is demanded if any are missing.

Dry Rot in Floor

R. E. B. C.—Dry rot has started in a floor. Can it be checked?

Ans.—The trouble known as dry rot is caused by confining timber in a position where there is no circulation of air, which promotes a growth of fungus that eats into the fibres and reduces them to powder. The fungus first appears like a frost, and then spreads in fine threadlike lace over the surface, eventually forming a vegetable-like growth with spreading leaves.

Dry rot occurs in joists and floors over warm, unventilated portion of cellars; in unseasoned beams and joists built solidly into walls; in heels of trusses incased in box cast iron shoes which prevent sap from escaping; in floor joists and sleepers embedded in mortar; in wall plugs driven into damp walls, in flooring covered by impervious material, such as oilcloth, linoleum, rubber tiles, etc., which prevent the access of air and retain dampness. Charring, tarring, and painting unseasoned timber also cause dry rot. The only method by which this could be overcome would be to have such a system that would give a free circulation of air to the places affected.—A.A.G. in Family Herald.



Form III, IV, V and VI: The estimate sheet in triplicate systemizes bookkeeping. The sales slip, triplicate, checks the driver and the receiver. Tickets filed in the delivery folder are instantly available. By filing charge slips in job envelopes, extras are easily kept track of.

New Equipment

New Woodworking Machine With Some Useful Attachments

The accompanying illustration shows a new woodworking machine recently placed on the market by the Parks Ball Bearing Machine Co., Cincinnati. It is a single table power machine made in two sizes, to which a number of attachments may be made after it has left the factory.

Jointer attachment. The plates are either 6 inches or 12 inches wide, are made of steel, ground to a true finish surface. The rear plate is 2½ feet long, front plate 2 feet long. Both plates furnished with hand wheel screws for raising or lowering (to adjust depth of cut) on inclines milled perfectly true in the solid metal in each side of plates, which are lined up level with surface of circular saw table and set with lock nuts on under side of table.

The tilting guide is light, strong and accurate and easily adjusted from 0 to 18 inches—tilts to 45 degrees, and is securely locked with hand wheel. It slides over the jointer and can be used for circular saw, and can be quickly taken off by loosening one hand wheel on under side, leaving a level table surface for cross-cut work. The guide plant is made of steel, 4 inches wide, 2½ feet long. The shipping weight is 30 lbs.

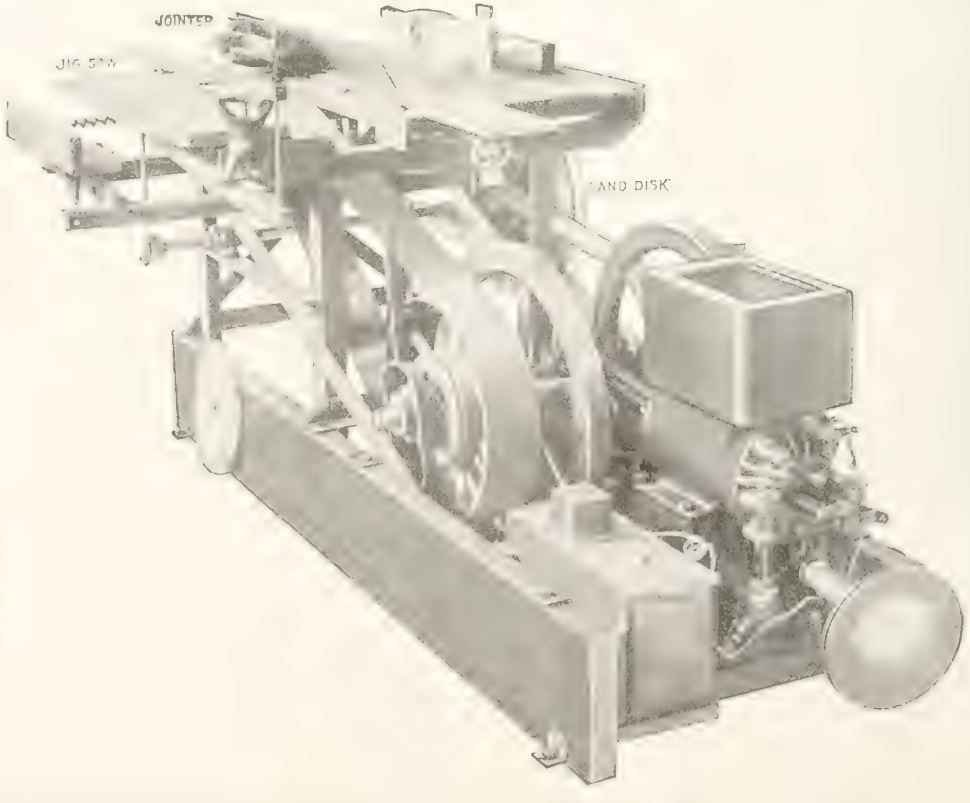
The boring attachment consists of an adjustable sliding support to hold the material being bored and a chuck attached to the end of saw mandrel. To take ½-inch round shank bits and drills, provision is made for stop to regulate depth to bore, and can be lowered to take in 2¼ inches below center of bit. The shipping weight is 25 pounds.

The jig saw tilting table and sand disk are on separate mandrel so circular saw, jointer, and jig saw can all be run at once, or either one separate. The jig saw can be removed by loosening three bolts, as the boring attachment cannot be used with it on.

Both sizes of saw table are heavy angle and channel steel, ground to a uniformly level and true surface; height, 2 feet 9½ inches; width 22 inches, overhanging base left side 6¼ inches; length, 3 feet; angle steel each side table makes substantial support to bolt wood extensions to, any width or length desired for long work; table hinged in back to raise and lower; adjusting depth cut, with opening for 14-inch saw, which will cut 5 inches deep; hard wood strip side of saw (furnished when 3-inch jointer is not ordered) is removable so that 3¾-inch cutter head can be used on saw mandrel; table is wide enough and holes are provided for 3 or 6-inch jointer.

The rip guide has convenient adjustment to cut any width up to 22 inches wide, and is securely held in line with saw by two hand wheels in front of table; has adjustable spring

The cross-cut guide is mounted on finished steel bar



Woodworking machine manufactured by the Parks Ball Bearing Machine Co., Cincinnati, having the number of attachments that may be added after it has left the factory

which slides in groove milled true in solid metal, making a perfect fit to do accurate work. It has angle adjustment of 45 degrees, is provided with an adjustable stop for cutting to lengths, and when working long timbers a brace can be connected below material, making a substantial, strong guide.

The engine is of the 4-cycle type, water hopper cooled, with speed lever to change speed while the engine is running. A friction clutch pulley on the engine permits the starting and stopping of the circular saw independently of the other attachments. The engine is set in the rear of machine in such a manner that every part is accessible. The machine and engine can be mounted on two-wheel truck, which can be drawn by hand or hitched to the back end of wagon.

The Richmond Screw Anchor

The impossibility of using screws embedded directly in cement or similar materials has caused builders considerable worry. In the Richmond Screw Anchor, for which the General Machinery Co., Limited, 22-26 Mulock Ave., Toronto, are distributing agents in Canada, the makers claim they have overcome this difficulty. The Richmond Screw Anchor provides the screw with a continuous metal bearing which cannot wear out, shake out or rust out. It is not an expansion bolt but an anchor imbedded in the work and tests have shown that the bolt breaks before the anchor loosens.

The device is made in various sizes, from $\frac{1}{4}$ in., for light work, such as fastening light plumbing and bathroom fixtures, window casings, etc., up to $1\frac{1}{2}$ in., for heavy concrete construction work to hold forms in the cantilever method of construction.

The method of placing this screw anchor is easy and full particulars as to this, prices, etc., may be had by writing the General Machinery Co., 22-26 Mulock Ave., Toronto.

"Paripan" Agents in the West

Mr. F. Sturgeon, manager of Sturgeons, Limited, Toronto, dealers in paint specialties, has just returned from a trip to the Pacific coast. While in the West, he appointed several agents, and the firm is now represented from coast to coast as follows: Montreal, The United Supply Co.; Winnipeg, The Hackney Tile & Supply Co.; Vancouver, E. G. Cullen; Edmonton, Davies & Moyle; Calgary, The Mapes Co., Limited; Regina, The Robson Supply Co.; Moose Jaw, The General Builders' Supply Co.; Lethbridge, J. H. Turney.

When asked for his opinion of present conditions in the West, Mr. Sturgeon said: "I found the West a little bit quiet, owing to the tightness of money, which is undoubtedly attributable to the money stringency in Europe, and also in Eastern Canada. Whether the present high prices of real estate in the West and the fact that the future in real estate has been discounted for the next twenty years has anything to do with the position, I would not like to say. Most people connected with the building trade throughout the country are optimistic of the future, and look on the present position as only temporary."

Will Appoint Agents in the West

Mr. W. A. Elliot, manufacturer of the "Elliot" woodworker, Toronto, will leave shortly on a trip to Western Canada.

Since he commenced advertising in the "Canadian Builder and Carpenter," Mr. Elliot has received numerous inquiries from builders in the West regarding his machine. These have impressed upon him the necessity of having agents in that part of the country and he is making this trip with the object of appointing representatives in the various centres throughout the West.

During his stay, Mr. Elliot will visit Winnipeg, Saskatoon, Calgary and Edmonton.

Walker and Son's New Departure

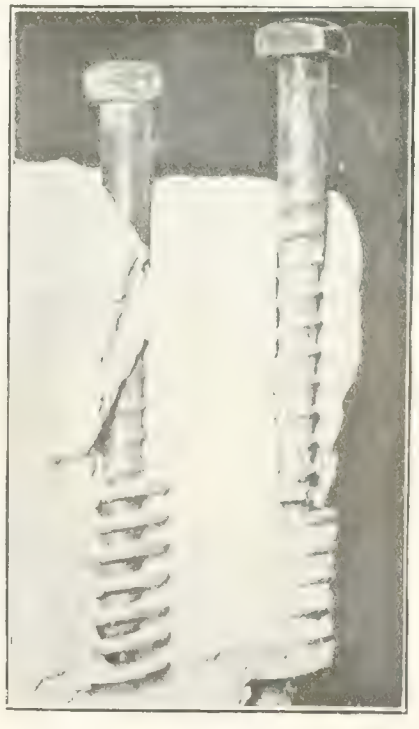
W. Walker & Son, who, for some years, have conducted a retail hardware store at 1228 Yonge Street, Toronto, have erected a large two-storey and basement addition to their place and have gone extensively into the sale of builders' hardware. The firm will cater to both large and small contracts, and, on June 1st, three travellers will be put on the road to cover Ontario and all through the West. A complete line of tools, heavy hardware, sash weights, cement, prepared roofing and other similar lines that enter into the make-up of a building will be carried.

A large sample room has been fitted up at the front of the first floor and tools will be shown here on shelves and in silent salesmen. The basement will be used for sash weights, roofing, cement and other heavy stuff. In the basement they have built a 70-foot tunnel of reinforced concrete, in which space can be stored between 100 and 200 tons of sash weights.

For the delivery of city orders, Walker & Son have a 2-ton truck, which makes four deliveries a day to all parts of the city. This insures prompt filling of orders.

A feature of the firm's line is a lock made up specially for them. This is in the form of a mortice lock, and Walker & Son state it is made stronger than any other mortice lock on the market. Instead of having a leaf spring, it consists of coil springs.

In the near future a catalogue of the lines handled will be issued.



The Richmond screw anchor.

News of the Building Trade

Building permits issued at Berlin, Ont., for the first three months of this year show an increase of $65,000, a total of 64 permits being granted, aggregating the sum of $133,064. During March 41 permits were issued, amounting to $67,614. Thirty-three of these permits were for residences, ranging in value from $1,800 to $4,000.

Greater Montreal will erect during the present year forty million dollars' worth of buildings according to the estimate of Mr. R. L. Wherry, secretary of the Builders' Exchange. Last year the figures were $33,080,000.

The value of building permits issued in Toronto in March was $1,980,960, as against $1,557,750 in the same month last year.

Guy H. Long, of the Long Lumber Co., Hamilton, gave a complimentary banquet to a number of Hamilton contractors and builders. After luncheon had been served addresses were given, in which reference was made by each of the speakers to the splendid outlook for Hamilton's building trade this season.

The city council of Toronto has decided to fix the limit of the height of buildings in the city at 130 feet. It is certain, however, that when the time comes a special permit will be issued to allow the erection of a building higher than this at the north-west corner of King and Yonge Streets.

According to Hon. Price Ellison, Minister of Finance for British Columbia, the lumber industry in that province in 1912 showed a falling off in production of close to $4,000,000 over the previous year.

Co-operative Contract Co., Victoria, B.C., $100,000.

Modern Homes, Victoria, B.C., $20,000.

Cowichan Repressed Brick and Tile Co., Victoria, B.C., $200,000.

Henson & Wood (builders), Victoria, B.C., $45,000.

The permit for what will be the narrowest building in Vancouver, has been taken out by Sam Kee, a chinese millionaire. The plans show a four-storey steel frame structure only 6 feet wide and 120 feet in length. The city recently apropriated most of Kee's land and left him only 8 feet.

The C. P. R. Department of Natural Resources, Calgary, is calling for tenders for eighty sets of ready-made farm houses and barns to be built this spring. There will be four colonies—two in Alberta and two in Saskatchewan.

Changes in Toronto's Building Laws

Several of the changes advocated by City Architect McCallum in Toronto's building by-law have been adopted. Separate schools have been added to public schools as among the buildings which, when exceeding fifty-five feet in height, must be of first-class. Apartment houses, lodging-houses, hotels and tenements have been added to the list of buildings which, if exceeding thirty-five feet in height, must be of first-class. Hospitals, asylums, dormitories, colleges, theatres, etc., are included in this category.

Ald. McBride succeeded in having some changes made in the by-law respecting the size of rooms in apartment houses, and now it is imperative that all "habitable" rooms in apartment houses shall contain 100 square feet. Six inches were added to the height of the rooms in apartment houses, this bringing the height to 8½ feet "in the clear," in every storey, excepting the attic.

It was also decided that cornices should not be permitted to extend more than twenty inches from the main wall.

Bungalows in British Columbia

In the March issue of "The Canadian Builder," plans of two bungalow-style summer cottages, erected on pillars, were reproduced. It was stated that these could also be put up on brick or concrete foundations.

Mr. E. Arthur Rixen, Deseronto, Ont., thinks the second bungalow could be built in this manner, but to meet his ideas, a bathroom would have to be squeezed in between the bedrooms, even if it projected three or four feet beyond the main wall, and, also, provided there was head room under the stairs for an opening to proposed bathroom.

According to Mr. Rixen there is a demand in British Columbia for well-arranged bungalows, neat in appearance, moderate in price, and having a fireplace in living-room with built-in bookcases, buffet in dining-room and built-in conveniences in kitchen. A bathroom is essential, and this, if possible, should come next to the kitchen, so that the hot water tank, placed in the bathroom, could be heated from the kitchen range when furnace is not in use. A cellar, with furnace (connected to hot water tank in bathroom) is also essential.

F. W. Maitland has no Authority to take Subscriptions

Mr. F. Watson Maitland, who for some time represented The Commercial Press, Limited, as subscription canvasser in the Canadian West, is not now connected with this company in any way and has no authority to collect money for the company.

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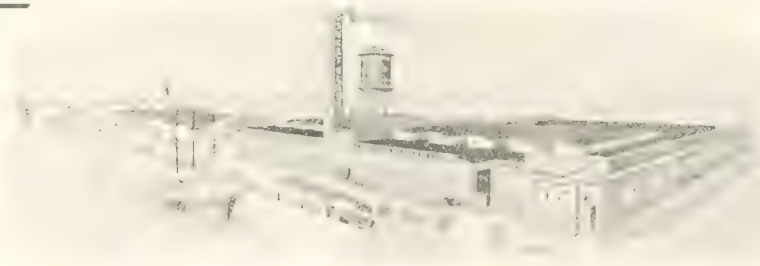
WINDOW
GLASS



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THE TORONTO PLATE GLASS IMPORTING COMPANY, LIMITED

Plate, Window, Figured, Stained, Wired, Bent, Mirror and Ornamental Glass

DON ROADWAY TORONTO

A Few Door Pointers

¶ There are several points in the Construction of Veneered Doors which are not visible when the door is finished, but which are of most vital importance to its life and strength.

First, and of probably most import, is the dryness of materials used.

Secondly, the construction of the cores, which should be joined with locked core to insure against any defect in the glue, which, by the way, is one of the weakest points in any veneered work.

Thirdly, all panels should be laminated to prevent warping and splitting as much as possible.

These three points are the most important and are found, along with many others, in our high-grade doors, which we are offering, and we only ask an opportunity to ship you some of our stock and let you be the judge.

We also handle everything in

LUMBER, LATH AND SHINGLES

Canada Lumber Company, Limited

Mill: Weston, Ont. Head Office: 106 McKinnon Bldg., Toronto Yards Toronto and Weston

Price List of Building Materials—Revised to Date

	PRICE AT MONTREAL	PRICE AT TORONTO	PRICE AT WINNIPEG	PRICE AT VANCOUVER
Hemlock Lumber				
2 x 4 in. to 2 x 12 in., 8 to 14 ft.	$20.00	$28.00 to 29.00	$29.00	
2 x 4 in. to 2 x 12 in., 16 ft.	22.00	26.00 to 28.00	29.00	
2 x 4 in. to 2 x 12 in., 18 ft.		29.00	29.00	
1 in. Hemlock No. 1	20.00	28.00		
No. 1 hemlock decking	23.00	27.00		
No. 2 hemlock dimension and 1 in.		24.00		
Pine				
1 in. common pine, 8 to 12 in. wide, rough	$27.00 to 30.00	$28.00 to 32.00		
2 in. white pine, bill stock	29.00 to 33.00	29.00 to 33.00		
5/8 x 8 and 10 in. pine shelving	36.00 to 40.00	36.00 to 40.00		
5/8 x 12 pine shelving	42.00	45.00		
No. 1 white pine flooring	40.00	37.00		
No. 1 spruce flooring	30.00	32.00		
No. 1 pine decking, D2S	40.00	33.00		
Spruce decking		32.00		
No. 1 pine V. or beaded sheeting	37.00	39.00		
No. 2 pine V. or beaded sheeting	31.00	35.00		
Pine Trim for Paint Finish				
4 in. casing, per 100 ft.	$2.00	$2.00		
5 in. casing, per 100 ft.	2.00	2.30		
8 in. pine base, per 100 ft.	3.50	3.48		
10 in. pine base, per 100 ft.	4.25	4.54		
4 in. pine window stool, per 100 ft.	2.75	2.75		
Shingles, Lath Roofing, Etc.				
XXX B. C. cedar shingles		$3.75 per M	$4.00 & 3.50 per M	$2.20 & 2.10 per M
X. B. Extras		3.50		
X. B. Clears		2.90		
No. 1 pine lath	5.00	4.75 per M	5.75 per M	2.25 per M
No. 2 pine lath	4.50	4.25		
No. 1 spruce lath	4.00	4.50		
Metal lath			.16 to .20	
Roofing Felt (2 ply)		3.50 per square	2.50 per roll	
Cedar Posts—Fence				
5 in. at small end	5c. foot	.25 each		
7 in. at small end	7c. foot	.35 each		
Hardware				
Nails, wire, common	$2.35 base keg	$2.55 cwt.	$3.70 per keg	$3.25 per keg
Nails, cut, common	2.55 " "	2.85	3.70	4.25
Sash weights, cast iron	1.50 per 100 lbs.	1.75		
Tarred felt paper	.40 roll	.55 roll	.90 per roll	.90 per roll
Building paper	.30 roll	.45	.75	.70
Insulating paper			1.25	
Brick, Tile, Terra Cotta, Sewer Pipe				
No. 1 dry pressed red brick	19.50	$18.00 per M	$25.00 to 50.00	$45.00 per M
No. 1 dry pressed buff bricks	20.50	18.00	25.00 to 50.00	45.00
Red stock bricks	11.00	12.00	13.00	13.00
Grey stock bricks		11.00		
Wire cut bricks for foundation work		11.00		
Porous terra cotta bricks		15.00	$15.00 per M	
No. 1 enamelled bricks, all colors, from		80.00 to 150.00	100.00	
Fire brick	25.00		45.00	45.00
Roofing tile			.15 per ft.	
Sewer pipe, 4 inch	10c. foot		.08½ per ft.	.14 per ft.
Sewer pipe, 6 inch	15c. foot		.16½ per ft.	
Cement, Plaster, Stone, Etc.				
Cement (bags extra)	1.80 bbl.	$1.80 bbl. (1.55 in car lots)	$2.50 per bbl.	$3.00 per bbl.
Sand, for cement or brick work	1.00 ton	1.15 a yard	1.75 a yard	
Lime	12.00	.35 cwt.	.32 per bu.	1.25 per bbl.
Hydrated lime	13.00	10.00 ton	12.00 per ton	4.25 per bbl.
Mortar color	5.00 bbl.	black, 3; red, 1½	.05 per lb.	
Plaster of paris	2.35	2.50 bbl.	4.00 per bbl.	4.50 per bbl.
Crushed stone, 2 in.	1.50 ton	1.40	2.50 per yard	
Crushed stone, 1 in.	1.60	1.45	2.75	
Crushed stone, 3/8 in.	1.75	1.50	2.75	
Hardwall plaster	$12.50 neat 6.00 sanded ton	$12.00 neat 4.00 sanded	12.00 per to	14.50 per ton
Gravel	1.85 ton		1.85 per yard	
Hair (plaster)	.03 per lb.	.04 lb.	1.25 per bale	14.50 per ton

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

SIMONDS

This year more

Simonds Hand Saws

are being sold in Canada than ever before.

There is a good reason.

The Saw is probably the best hand saw that has been or can be made today. The steel is Simonds' own Crucible Steel and the handles selected applewood. Every saw absolutely guaranteed. Let your Hardware Dealer explain more about this saw and show you samples or write us for further particulars.

SIMONDS SAWS are best and they ARE the best

WARRANTED The Simonds Saw FITCHBURG MASS CHICAGO ILL U.S.A. BRANCH HOUSES NEW ORLEANS SEATTLE, WASH. SAN FRANCISCO LONDON ENG. AND MONTREAL

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Look for the name YALE on Locks and Hardware

YALE

In the new Vanderbilt Hotel, New York
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THE Yale Locks and Builders' Hardware used throughout many of the most imposing buildings in the United States and Canada show that character, beauty and refinement of detail in hardware may always be linked with the highest possible mechanical excellence in locks—if the architect specifies Yale.

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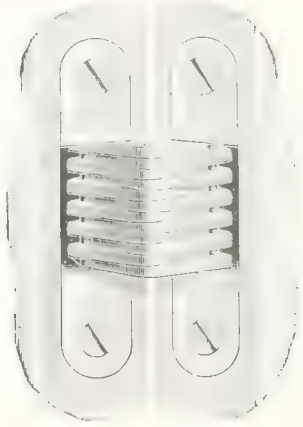
Soss Invisible Hinge

For use on Panel Work, Lockers Closets, Counter Flaps, Partition Doors, Cabinets, etc.



Soss Invisible Hinges are made in a variety of sizes, the largest being adapted for largest size door.

Send for circular and prices; or buy from leading Hardware Dealers

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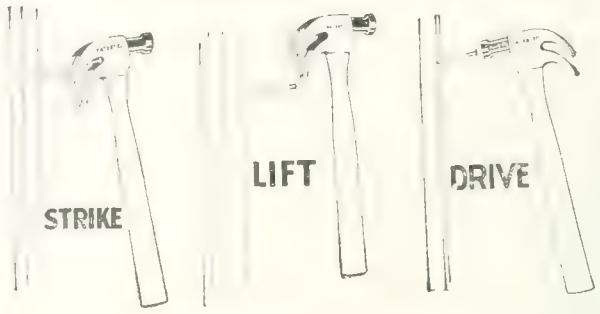

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Double Claw Hammer

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Gentlemen :

Kindly send me further particulars, also specifications for piping buildings for gas.

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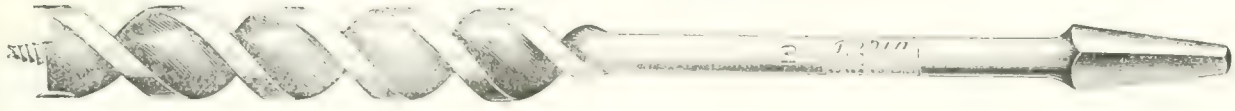

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We will send you post-paid, on receipt of 30c., one ½ inch High Speed Tobin Auger Bit. This Bit carries with it an indestructible guarantee which ensures perfect satisfaction.

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A Fastening Device of Special Interest to

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Self-Clinching Nails on Hollow Fire-Proof Construction

Are—

Logical Fastenings—Because they do away with wood and metal plugs.

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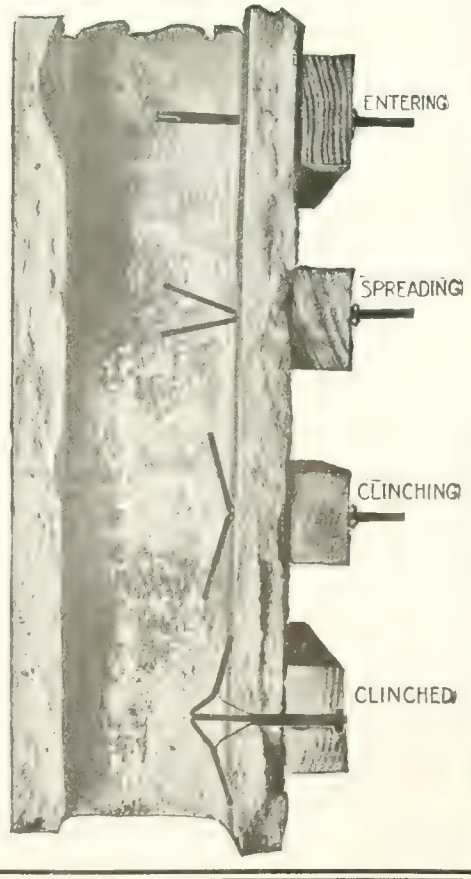

CLASSIFIED DIRECTORY—A BUYER'S GUIDE FOR BUILDERS IN CANADA

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Asbestos Goods.
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Alabastine.
Alabastine Co., Paris, Ont.

Automatic Gas-Steam Boilers.
Consumers' Gas Co., Toronto.

Barrows and Concrete Carts
London Concrete Machinery Co., London, Ont.

Bath Tubs.
Standard Ideal Co., Port Hope, Ont.

Beaded Sheets.
Metal Shingle & Siding Co., Preston,

Bolts (Expansion).
Freek, Clark & Co., Toronto.

Bronze (Cast).
W. H. Thornhill Co., Winnipeg.

Builders' Tools.
Freek, Clark & Co., Toronto.

Burial Vault Molds.
Ideal Concrete Machinery Co., London,

Casement and Sash (Steel and Bronze).
W. H. Thornhill Co., Winnipeg.

Carts, Concrete
London Concrete Machinery Co., London, Ont.

Closets.
Standard Ideal Co., Port Hope, Ont.

Ceilings, Metal.
Metal Shingle & Siding Co., Preston,

Ceilings and Walls, Embossed Steel.
Galt Art Metal Co., Galt, Ont.

Cement (Portland).
Ontario Lime Association, Toronto.

Cement Workers' Tools
London Concrete Machinery Co., London, Ont.

Colors for Concrete.
Ideal Concrete Machinery Co., London,

Concrete Block Machines.
Ideal Concrete Machinery Co., London,
London Concrete Machinery Co., London, Ont.
Wettlaufer Bros., Toronto.

Concrete Brick Machine.
Ideal Concrete Machinery Co., London,
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Wettlaufer Bros., Toronto.

Concrete Sill, Lintel and Dimension Stone Machines.
Ideal Concrete Machinery Co., London.

Concrete Mixers.
Ideal Concrete Machinery Co., London.
London Concrete Machinery Co., London, Ont.
Wettlaufer Bros., Toronto.

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Ideal Concrete Machinery Co., London.
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Concrete Reinforcements.
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Construction Companies.
Weber Mfg. Co., West Allis, Wis.

Contractors and Builders.
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Galt Art Metal Co., Galt, Ont.

Corrugated Sheets (Asbestos).
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Corrugated Sheets (Steel).
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Crestings.
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Curb Stone Machines.
Ideal Concrete Machinery Co., London.

Cutouts.
Duncan Electrical Co., Montreal.

Daylight Rods.
Consolidated Plate Glass Co., Toronto.

Derricks.
Ideal Concrete Machinery Co., London
London Concrete Machinery Co., London, Ont.

Doors (Wooden).
Canada Lumber Co., Toronto.
L. A. DeLaplante, Limited, Toronto.
Georgian Bay Shook Mills, Limited, Midland, Ont.

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W. H. Thornhill Co., Winnipeg.

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Luther Grinder Mfg. Co., Milwaukee, Wisconsin.

Drinking Fountains.
Standard Ideal Co., Port Hope, Ont.

Eavestrough.
Metal Shingle & Siding Co., Preston,

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Galt Art Metal Co., Galt, Ont.
Metal Shingle & Siding Co., Preston.

Electrical Fixtures and Specialties.
Duncan Electrical Co., Montreal.
W. H. Thornhill Co., Winnipeg.

Expanded Metal.
Galt Art Metal Co., Galt, Ont.

Fences.
Dominion Ornamental Iron Co., Ltd., Toronto.
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Finials.
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Georgian Bay Shook Mills, Midland.

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Decatur Bull Co., Montreal.
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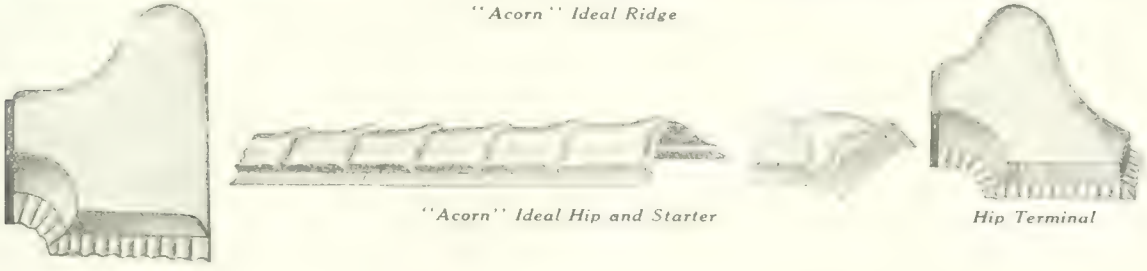

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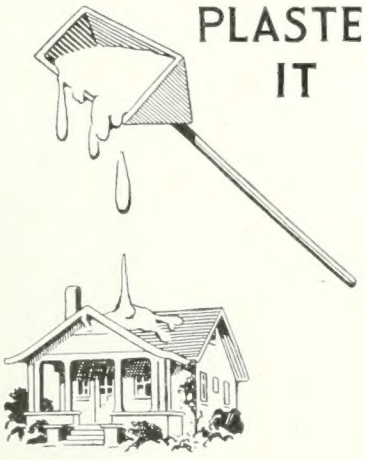

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